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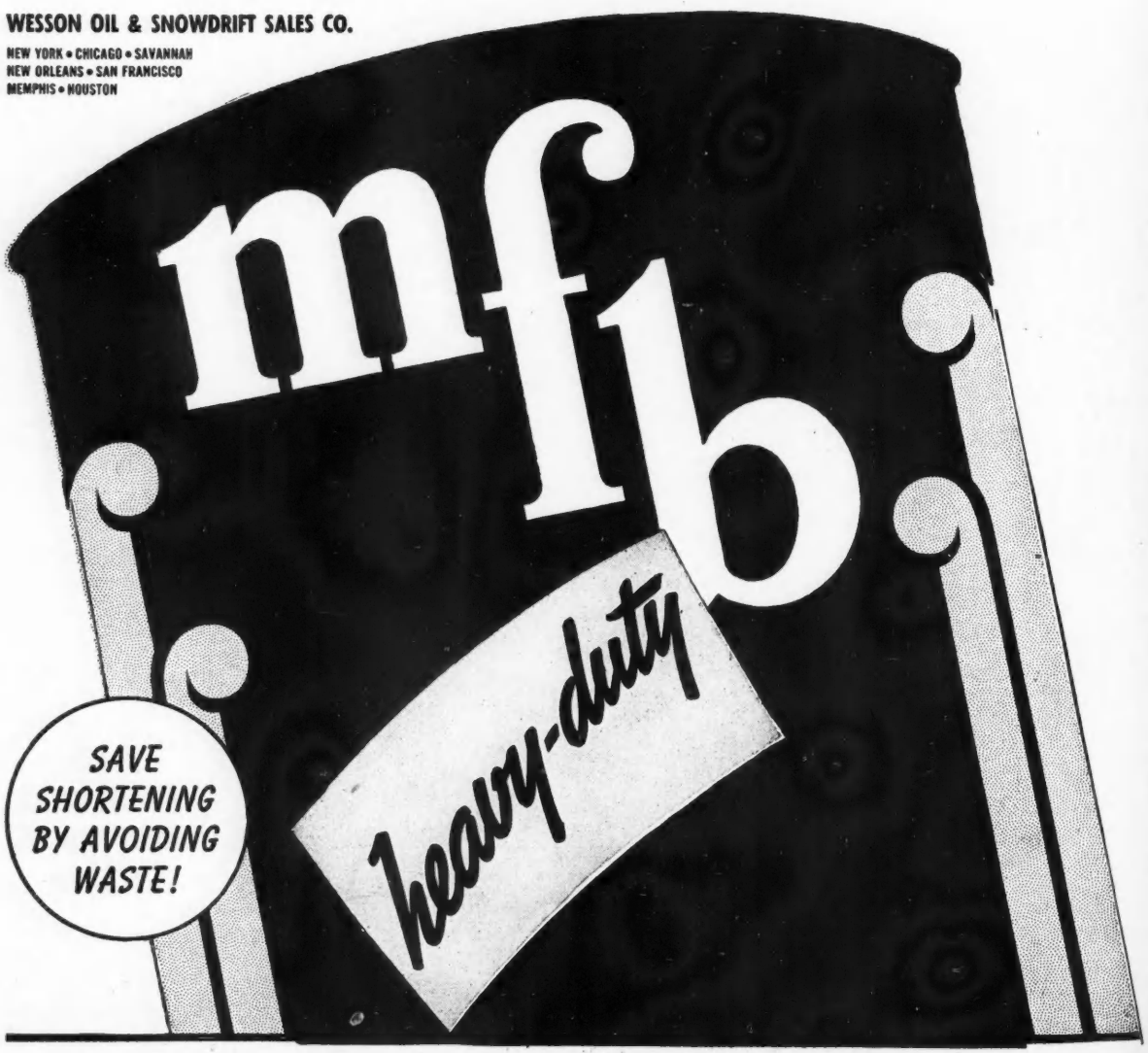

MAJOR HELEN C. BURNS, M.D.D., A.U.S.

AN INSPECTION TOUR OF DIETETIC DEPARTMENTS IN ARMY HOSPITALS, EUROPEAN AND MEDITERRANEAN THEATERS OF OPERATION

MAJOR HELEN C. BURNS, M.D.D., A.U.S.

Helen C. Burns was appointed Director of Dietitians in the Medical Department of the Army, January 12, 1943 with the rank of Major.

By act of Congress, December 22, 1942, women dietitians were appointed in the Medical Department of the Army. Of the civilian dietitians then on duty 565 remained with the Army. As of June 30, 1945, 1600 had been appointed and the ceiling on Army requirements then was 2150 Medical Department Dietitians. Major Burns advises the Surgeon General on all matters pertaining to Medical Department Dietitians. She is responsible for the procurement and original assignments of these women. She received her Bachelor of Science degree from Simmons College, Boston, after which she taught high school for a year in Louisiana. She then attended the Army School for Dietitians at Walter Reed General Hospital, Army Medical Center, Washington, D. C. and after graduation remained on duty at the hospital. In 1933 she was appointed Chief Dietitian, which position she held until August 1942. At this time she was appointed Superintendent of Dietitians in the Office of the Surgeon General until January 1943. Major Burns is a past president of the District of Columbia Dietetic Association. Her home is in Lowell, Massachusetts.

The Army also trains dietitians. The Surgeon General's Office, under Major Burns' direction, has set up special schools in four Army hospitals. The course is of one year's duration, including six months' student and six months' apprentice training. As of June 30, 1945 there were 36 student dietitians and 78 apprentice dietitians on duty.

At 8:00 p.m. January 27 a car arrived at our hotel in New York to take our party to La Guardia Field. In compliance with AGO letter AGPO-A 210.482 dated January 19, 1945, Col. Florence Blanchfield, Superintendent of the Army Nurse Corps, Major Emma Vogel, Director of Physical Therapists, and I had left Washington January 25 for New York where we were to prepare for a trip to the European Theater. At La Guardia Field we were briefed on the equipment that would be found on the plane. Our plane, a C-54, took off at 2:55 GMT January 28. Because of inclement weather, the trip was slow, which gave us a better opportunity to view the landscape during the first stage of the journey. We arrived in Paris at 5:00 p.m. February 1. The weatherman there was most considerate. The recent heavy fall of snow had melted and we were to see no more of winter.

An officer had looked after us throughout the trip and saw that we reached our proper destination. How fortunate we were to have an escort, for we had much to learn about the way of the Army in a foreign country. The day after we arrived our inspection of hospitals began. The first one visited was housed in a very modern building in Paris, but it was disappointing to find that much of the fine looking equipment in the kitchen could not be used because of the low gas pressure. Most of the cooking had to be accomplished by steam and field ranges. As time went on, I grew accustomed to seeing these strictly utilitarian ranges in beautifully tiled kitchens as well as in the tent hospitals.

On February 3, we left by car for the Cherbourg area. Leaving Paris, we began to see destruction. It increased as we went through Lisieux, Cagny, Caen, and Carentan. On our return trip we passed through St. Lo. Some of the countryside was beautiful and at first you wondered, with the shortage of food, why the fields lay idle. But one had only to look at the signs on the road, "Cleared of mines to hedge," to realize the amount of work that remained to be done before the farmer could plant his crops.

In this area, we saw our first tent hospitals. They were neat and well laid out. The dietitians were wearing their field uniforms and helmets. The food prepared on field ranges in the main kitchen was sent to the ward diet kitchens in insulated boxes. In these kitchens the food was arranged for the patients on plastic section trays. One hospital had improvised a heating chamber for the trays and a covered box with shelves for use in conveying the filled trays to the wards. In other hospitals a similar box was taken to the wards and the hot food served on trays which had previously been set up with the cold foods. Each method had its advantages and served the purpose, namely, getting hot food to the patients. In this area we were served most delicious chicken and mashed potatoes, but not until I saw the potatoes being laboriously mashed with a wooden paddle did I fully appreciate the smooth fluffy product that was served.

On our return from the Normandy area, a few days were spent at the Chief Surgeon's Office. We visited hospitals in and around Paris. On one of our visits a Nutrition Officer of the Canadian Army accompanied us. It was interesting to get a comparison of our hospitals with those of the Canadian Army. While in Paris, I visited the Quartermaster and learned something of food supply problems. At that time, fresh eggs, butter, frozen meats, and some fresh fruits and vegetables were being supplied.

On February 11 we left Paris for Contrexeville. As the trip was long and we could eat only in American messes, we were prepared to eat K rations for lunch. But when lunchtime came, we spotted a transient mess which was set up in a shed. It was a most welcome sight as we had been traveling a long time in very heavy rain. The C.O. was happy to see someone recently arrived from the United States and was proud of the way his cook performed. The cook devised really delicious meat cakes out of meat and vegetable stew and the speed with which he whipped up the meal was surprising. Our journey ended at a hospital in a partially completed building that the French intended to use as a mental hospital. We visited that and another in the area the next day and then went on to Dijon. Here the hospital was set up in what had been a cavalry school. One ward had over a hundred patients. The food was brought to a table in the center of the ward and the trays were served from there. The coffee was prepared in a very small diet kitchen at the end of the ward. Everything was well systematized and the serving skilfully managed. In the same hospital, there was an arrangement whereby three large wards diverged from a narrow passage which had been made into a kitchen. It was all inclosed, with the front arranged so that the top half could be dropped down to form a counter. In every hospital which we visited some piece of equipment or arrangement of equipment displayed the ingenuity of our Army personnel. It was St. Valentine's Day when we visited this particular

hospital. Going through the bakery, we discovered sugar cookies cut in heart shape. Nothing, apparently, was forgotten.

The dietitians all along the way asked many questions about the food situation. In one hospital, there appeared to be no difficulties in this respect. They had gelatin desserts, powdered skim milk, and all the other special items. The C.O. gave us the answer—*his* dietitian went to the ration dump in person to get supplies. In another evacuation hospital where the dietitian served as the Mess Officer, credit was given to the "Female Mess Officer." There were two methods of issuing food: (1) regular rations were issued together with a hospital supplement for all patients; (2) an allowance of 35 cents was made in lieu of the hospital supplement. This money was spent on paper for the extra food needed.

We also went to the Nancy area where a few of the Evacuation Hospitals were located. I thought it possible that the dietitians on duty here might like a transfer to the General Hospitals and offered to arrange this for them. Like good soldiers, they said they would go "if needed," but the evacuation hospital was their first choice. This was especially interesting to me as at one time there was some question whether dietitians were needed in these hospitals. Because of the good work they have done, they have now become important members of the units.

On our return to Paris, we found a radio message dated February 16 which amended our orders to read: "Proceed upon completion of temporary duty in the ETO to MTO, Caserta, Italy, on further temporary duty for approximately 30 days and return to proper station in compliance with customary orders on completion thereof." This gave us an extra month in which to see more of our personnel. The last part of February was spent in England. While there, we visited two Convalescent Centers, fifteen General Hospitals and one Station Hospital, and talked with six groups of dietitians. The hospitals in this area were similar to those in the United States. Many of the General Hospitals at this time were acting as holding hospitals. There were a large number of special diets. The following is the census for one of the hospitals for one month (January): soft, 246; liquid, 70; high-calorie, high-vitamin, 132; high-carbohydrate, 1; high-calorie, soft, 1; low-fat, soft, 3; dental, soft, 428; jaw, 297; Sippy, ulcer, 498; Sippy, 84; low-fat, 154; regular, with supplementary feedings, 5; low-residue, 102; tube feeding, 1; low-fat, liquid, 7; low-fat, vitamin P, high-carbohydrate, 1; clear liquid, 1. The total census for the day was 2029 with approximately 20 per cent of the diets "special."

We returned to London, hoping that there would be some time for sight-seeing, but were disappointed to discover that our days were too full. However, in passing we did catch a glimpse of Buckingham Palace, Westminster Abbey, Trafalgar Square, and many other interesting historical places. I visited "Willow Run" in London to observe for myself the splendid work that Capt. Ethel Irene Boelts was doing. Our trip to Covent Garden Market (fruit and vegetable market) was also most interesting. At the time, a small bunch of asparagus was selling for £1 or around $4! We returned to Paris by plane and as we soared out over the coast we had a clear view of the famed white cliffs of Dover.

Our last journey in France was made in a reconnaissance car, through Belgium, Germany, and Holland, and past the Siegfried line. We inspected many of the hospitals that were in the zone of the December "battle of the bulge" and had been subjected to extensive robot bombing. Lt. Elsie K. Miller, writing in the June issue of this JOURNAL, tells a graphic story of her experiences in one of these hospitals. A General Hospital in this area had just been moved into the Herman Goering Hospital in Aachen, which was standing amidst the ruins of the city. It had previously been occupied by a Field Hospital and some of the cleaning up had been completed but there was still a great deal to be done. The one thing that impressed me about this German-built hospital was the ample size of the diet kitchens. The main kitchen was in a building located down the hill from the hospital proper. It is possible that the Germans had planned to cook much of the food in the individual kitchens. When the baker arrived, to his delight he found a large bake oven with steam connections so that he could make hard rolls, and he turned out a perfect product forthwith. Another unit visited in this area, an Evacuation Hospital, was operating in a small Belgian hospital building. This hospital, like all others which had been occupied by the Germans, was given a thorough cleaning before our Army personnel could function as a hospital group. It was evident that many of the buildings had been abandoned in great haste.

On our return to Paris, we stopped at two hospitals which were operating with very small kitchens, but the dietitians were doing an excellent job. It did not seem possible that they could be feeding such large numbers with so little equipment. At this time, I also went to the Quartermaster Headquarters and had a chance to observe the work of Capt. Catherine Ver Murlen, a Medical Department Dietitian assigned to Headquarters. As described in this JOURNAL for May, she had to cope with many problems in making menus for varied groups and she is highly deserving of the official praise she has received for her work. Also attached to this office were a few Medical Department Dietitians working with mess teams which went out in the field to assist the messes in food preparation and services and in the securing of supplies according to need.

The inspection trip in the ETO was completed on March 14. From Paris we proceeded by plane to Naples, stopping off at Dijon and Marseille. In Italy we found the hospitals grouped together and fewer in number and we were therefore able to inspect all the General Hospitals, many of the Station, and a few of the Evacuation Hospitals in that theater. The units had, of course, been established longer than those in France and had an air of permanency similar to those in England. An interesting group of buildings occupied the fair grounds in Naples. One housed the kitchens and mess halls of two hospitals, the wards of which were across the street in other buildings. Many of the decorations placed there by order of Mussolini were still in evidence so that the patients walking about the grounds had much of interest to see.

Again it was gratifying to see that the dietitians were managing their units so that the food served the patients was excellent. There was much emphasis on nutritional adequacy here as the number of cases of hepatitis in the hospitals was large and the principal treatment for this condition was rest and diet. When we reported to the Office of the Chief Surgeon, the first questions one of the medical officers asked me were, "What do you know about the hepatitis diet, and what are they doing in the other theaters about high-protein diets in some of the surgical cases?" I could give a fairly intelligent answer to the latter, but had to admit that I hoped to learn more in Italy about the diet for hepatitis. Col. Marion H. Barker, Medical Officer with the 15th Medical General Laboratory, had done a great deal of research on this. He believed the diet to be so important that he had assigned a dietitian to visit all hospitals in that area in order to acquaint them

with the treatment. She had been well received and at a Mess Officer's conference held shortly before I arrived, two of the remarks made were, "We would appreciate a periodic visit by a traveling dietitian to units too small to warrant a dietitian," and "It is recommended that traveling dietitians visit all installations not having dietitians and that they remain for a period of not less than one week."

Many of the dietitians in Italy were veterans of the campaign in North Africa. They had been, in fact, pioneers in dietetic departments in that area. One, though she was assigned to a hospital with a 500-bed capacity, at the beginning had had to feed over 2000 patients. The work these seasoned dietitians were doing in Italy when I was there was, they said, mere child's play in comparison to what they had done previously. They had accomplished much but everywhere we went improvements were still being made.

For the last stop on our itinerary, we went on up past Florence into the mountains. Here, in one of the Evacuation Hospitals, we were somewhat surprised when the dietitian in charge greeted us by asking, "Wouldn't you like to sample our ice cream? We have vanilla and chocolate today." This dietitian, Lt. Sally Brightman, had made a name for herself in the Fifth Army. Whenever there was trouble in one of the smaller hospitals where no dietitians were assigned, orders went out for her to go on T.D.

Thus ended our trip which covered two theaters of operation and included fifty General Hospitals, fourteen Station Hospitals, and ten Evacuation Hospitals. I had an opportunity to talk with well over 300 dietitians. My one regret was that I did not have time to talk with each one personally. Fortunately, a dietitian, Lt. Myrtle Aldrich, has recently been assigned to the Office of the Chief Surgeon, ETO. She will carry on the work of inspecting the dietetic departments of the hospitals and conferring with the dietitians. Her immediate responsibility, however, is redeployment.

I returned to Washington feeling very proud of the work the Medical Department Dietitians are doing, and with a far better understanding of the conditions surrounding their assignments.

Medical Survey of Nutrition in Newfoundland

The Food and Nutrition Board of the National Research Council is making available to all American physicians and others engaged in nutrition work and research a report entitled *Medical Survey of Nutrition in Newfoundland*, reprinted from the Canadian Medical Association *Journal*. In transmitting the report, Dr. Frank G. Boudreau, chairman of the Board, states: "Many different types of survey have been carried out in the United States, more limited in scope than the Newfoundland survey, and all have revealed the existence of groups in the population whose diets are deficient and whose nutrition and health are thereby impaired. The recognition of the milder or more chronic types of malnutrition is often difficult, so that the methods used by the group which carried out the Newfoundland survey may be of interest .... Conditions similar to those described in the report could be found even in economically advanced countries like our own."

The report includes some excellent photographic illustrations in color, and the conclusions read, in part, as follows: "Evidences of nutritional deficiencies due to lack of vitamin A, riboflavin and ascorbic acid were seen with great frequency. Evidences due to lack of thiamine were encountered much less frequently, but still in an appreciable number of the people. Mild acute and chronic niacin deficiency was of frequent occurrence in the population examined. Signs of rickets were seen in comparatively few subjects. Only moderately low haemoglobin values were found in a proportion of the population and no evidence of protein deficiency was encountered.

"Compared with the recommended allowances the average available food supply was adequate in calories, protein and fat but was extremely low in vitamin A, riboflavin and ascorbic acid. The supply of thiamine, although relatively better than the above noted nutrients, was still inadequate. The amount of niacin was at the recommended level. Iron was somewhat below the recommended level, while the calcium was extremely low. It is emphasized that those comments refer to the average figures, that few eat such average amounts, and that the food actually consumed by many persons is undoubtedly less satisfactory than suggested by the average figures. The chemical findings also indicated an unsatisfactory intake of these nutrients in a high percentage of the population. On the whole a close correspondence was found between the food deficiencies and the chemical and the clinical signs of malnutrition.

"Correlation is not necessarily or invariably to be expected between tissue state and blood or excretion levels. More often than not it is not obtained. Numerous factors and circumstances contravene the relationship. Two potent factors may be mentioned; asynchronism and conditioning factors.

"It should be borne in mind that a deficiency state once initiated and developed in the body in its subsequent course through the years has irregular ups and downs in intensity and tempo while in the long run usually slowly progressing. Both in the initial evolution and in the intensifications and subsidences of the subsequent protracted course of the deficiency state, the blood level change precedes tissue change and occurs more quickly and frequently. Mainly the blood level reflects only more recent diet intake. On the other hand, tissue change is the last event. It takes time to develop pathological change in the tissue. It is slower and cumulative. These characteristics are particularly true of chronic deficiency states seen more frequently and pronouncedly in older persons. Tissue changes accordingly reflect past as well as present deficiency.

"Thus in the inception and in the episodes of exacerbation and recession during the course of a deficiency state, the tissue and blood changes are on a different schedule both in their start and in rate of progress. They are not synchronous; they do not move together. There is a lag in the tissue changes. Most of the lesions observed, therefore, particularly in chronic states, are not contemporaneous with the blood level found at the time of examination. Low blood levels may exist for variable periods before the appearance of morphological change; conversely, high levels may be present with such changes. Most older persons have cumulative changes of the chronic type, regardless of present levels. Despite high blood levels, accumulated changes might already be there.

"It has been pointed out by Kruse that the term 'nutritional deficiency' should be used to denote a deficiency in the bodily tissues rather than in the diet. It is possible for a nutritional deficiency to exist with a diet adequate under ordinary circumstances but inadequate owing to requirements greater than normal for one reason or another. Also, a nutritional deficiency primarily the result of an inadequate dietary intake may be intensified by other conditions. These other factors have been referred to as "conditioning factors." For example, it has long been known that pellagrous skin lesions tend to develop on the parts of the body exposed to the sun. Sunlight is therefore a conditioning factor, and no one would think of referring to sunlight as a cause of pellagra.

"Conditioning factors may not only intensify deficiency states, their absence or diminution may minimize the deficiency state. For example, acute infection and dental occlusion, particularly with malocclusion, are conditioning factors contributing to gingivitis in avitaminosis C; in older persons with fewer or no teeth and less gingival infection, a correlation between gingival condition and serum ascorbic acid levels would conceivably, as in the present survey, be less demonstrable than in younger persons. Hence because of asynchronism and conditioning factors, as well as other considerations, the lack of statistical correlation generally in surveys is understandable."

SOME PICTURES OF FOOD CONSUMPTION IN THE UNITED STATES: PART I. 1630 TO 1860[1]

CALLA VAN SYCKLE[2]

AT ANY one period a variety of patterns of food consumption may be found within any country characterized by wide geographical differences, by different stages of development and urbanization, by widely varying socio-economic conditions, or by differences in race and national origin. To present the diet of only one area or class as representative of the diet of the country as a whole would constitute a very distorted picture indeed.

In building up a picture of American food consumption from the colonial period to the present, one is in danger of presenting a one-sided view of food habits, particularly for those years for which little or no statistical material is available. An extensive search of available materials with careful evaluation of the probable authenticity of reports is necessary. An example of a distorted conclusion is that by Cummings[3] in his chapter, "Food on the Farm, 1789–1840," in which he states that "A monotonous round of badly cooked food, however, was the lot of most Americans." This appears to be based on the following: statements by Ashe, whose writings have been discredited; the biting criticism of all things American in Dickens' *Martin Chuzzlewit;* a patently much exaggerated quotation from Volney, a French traveler and writer; and a passage from Cooper's *Chainbearer,* emphasizing the use of pork in the diet of the frontiersman.

Accounts of the food consumption and foods available to the American people during the colonial period and the early years of the republic are to be found in diaries, letters, old account books, the literature of the day, and reminiscences of early life such as those reported by retired wage earners to the Massachusetts Bureau of Statistics of Labor in 1872–73. Although the picture gained from these sources is not a completely rounded one, it is indicative of the kind and variety of foods available in different areas and furnishes a background against which present food habits and changes going on can be observed.

It is noticeable that throughout our history reports of physical abundance are much more common than those of scarcity. Early settlers found corn and a variety of other vegetable foods growing in the gardens of the Indians and wild fruit, game, and fish available for the taking. To these foods they soon added the meats and dairy products, grains, fruits, and vegetables of their homelands. Trade with the West Indies supplied them with sugar, molasses, and exotic fruits. The diet at times, particularly in winter, must have had little variety, but there seems to have been relatively little actual want. As the pioneers moved westward, the same potential abundance awaited them.

Accounts of food in colonial days and in the early years of the republic are likely to vary, depending on the season of the year in which the report is made and whether the account is of the more settled sections or a backwoods region. Travelers were apt to judge the food served to them by their own tastes and habits and sometimes condemned a food simply because it was different. Mrs. Trollope's opinion that hot rolls were "horrible" and corn meal dishes "all bad"[4] and Grattan's comments on salted butter are of this nature. The frontier diet, whether in the North or South, was much the same. Cured pork and cereals were the mainstays, with such additions as could be easily provided from gardens, and later from chickens and cows. The cities and areas near them provided a much wider range of foods for all, with delicacies and luxuries for the well-to-do. As the country developed, families in the lower economic levels and in the more recently settled sections were able to achieve many food items which had been common before this time, chiefly on the tables of the well-to-do in the older population centers—such foods as fresh meat in place of cured, white flour bread and cakes, butter, white sugar. However, in certain parts of the South, among the rural families at very low economic levels, the frontier diet still persists.

THE COLONIAL PERIOD

The colonial period of our history covers around 170 years—time enough for considerable development to take place in a new country. Schmidt and Ross[5] speak of it as a period of experimentation and adaptation.

In the narrow strip of territory along the Atlantic seaboard, cities soon developed. Inland was the "back country," the colonial frontier, which moved slowly westward. "Roughly speaking, it took a century of Indian fighting and tree-felling for the colonial settlement to expand into the interior about a hundred miles from the coast."[6]

The seaboard cities traded with each other, with the West Indies, and with Europe. The rest of the settled area was made up of small scattered rural communities, having relatively little contact with each other or the outside world. Families produced most of what they consumed and as they all produced about the same things there was little exchange between families or between communities. As the back country became more settled in the latter part of the colonial period, the seaboard cities became increasingly important as trading centers. Increasing prosperity brought opportunity in the more settled sections for accumulation of wealth in addition to rude comfort. In contrast, the newer frontier areas were characterized by comparative poverty and few social contacts.

The historical material available indicates that family living in the early years of colonial settlement was much more similar throughout the country than was the case in later years. There were some regional differences, of course. However, references to American food habits in the seventeenth century probably do not have to be very diverse to present a fairly representative picture of the diet of a large part of the population. This is much less true of the eighteenth century when substantial movements into the Old West had taken place. Turner calls the "Old West" the "western area intermediate between the coastal colonial settlements of the seventeenth century and the trans-Allegheny settlements of the latter part of the eighteenth century. . . . It includes the back country of New England, the Mohawk Valley, the Great Valley of Pennsylvania, the Shenandoah Valley and the Piedmont." Movement into this territory was begun between 1676 and 1700 but the most active migrations occurred after 1730. This westward expansion resulted in the formation of two distinct societies: an interior, pioneer society with little differentiation of classes and a well-established, more class-con-

[1] From unpublished doctoral thesis No. 672, "Changes in Food Consumption in the United States and Certain Factors Affecting It," Iowa State College Library, 1941. Part II, covering the years 1860 to 1941, will appear in a subsequent issue of this JOURNAL.

[2] Head, Department of Home Economics, Margaret Morrison Carnegie College, Carnegie Institute of Technology, Pittsburgh.

[3] Cummings, Richard Osborn: The American and His Food, p. 12. Chicago: University of Chicago Press, 1940.

[4] Trollope, Frances: Domestic Manners of the Americans, pp. 255, 50–52. New York: Dodd, Mead and Co., 1927. 1st Ed., London, 1832.

[5] Schmidt, L. B., and Ross, E. D.: Readings in the Economic History of American Agriculture, p. 37. New York: The Macmillan Co., 1935.

[6] Turner, F. J.: The Frontier in American History, pp. 67–68. New York: Henry Holt and Co., 1920.

scious society in the seaboard area. Greater contrasts in living conditions were now to be found between seaboard and "back country" and between levels of living in the more settled sections. These facts should be kept in mind in interpreting the examples of food habits in the colonial period.

Colonial New England. The food supplies of the Reverend William Blaxton, who established a home in Boston in 1625, have been described as follows[7]: "The blueberry and blackberry bushes that covered Beacon Hill helped to supply his frugal table, as did wild strawberries and grapes, which were close at hand in their season. . . . For a small trinket bestowed now and then among the Indians that inhabited the opposite shores, he could always be supplied with oysters, clams and other fish that abounded almost at his very door, and Indian corn, smoked or dried fish, lobsters and venison for winter's store, could be obtained with equal facility." Beans, pumpkins, squashes, and artichokes were available from the gardens of the Indians. Pigs, goats, cows, and sheep were early imported. Higginson,[8] an early Massachusetts Bay colonist, wrote: "our Governour (John Winthrop) hath store of greene Pease growing in his Garden as good as ever I eat in England." "This country aboundeth naturally with store of Roots of great variety, and good to eat. Our Turnips, Parsnips, and Carrots are here both bigger and sweeter than is ordinarily to be found in *England*. Here are also store of Pumpions, Cowcumbers, and other things of that nature."

In his *Journal*, John Winthrop[9] wrote of suffering from scurvy in the winter of 1630–31 among the "poorer sort of people" recently arrived in the colony but there is no mention of general want. He described the feasting that celebrated the arrival of his wife and children from England in November 1631: "and divers of the assistants and most of the people, of the near plantations, came to welcome them, and brought and sent, for divers days, great store of provisions, as fat hogs, kids, venison, poultry, geese, partridges, etc. . . . It was a great marvel, that so much people and such store of provisions could be gathered together at so few hours' warning." In August 1633, Winthrop wrote: "There was great scarcity of corn, by reason of the spoil our hogs had made at harvest, and the great quantity they had even [eaten] in the winter, (there being no acorns;) yet people lived well with fish and the fruit of their gardens." The open commons afforded common pasturage for cows, and we may assume that milk (and later, cheese) was generally used.

Weeden has gathered together many facts on the economy and daily order of living in the New England colonies which throw light on the foods available. "Farming was now (1632) established sufficiently, and wheat and maize were plentiful enough to require mills for grinding." Orchards were planted in the early days of settlement and by 1660 "All through the land there was plenty of apples, pears, and other fruits, musk melons, watermelons, etc." John Winthrop, Jr., Governor of Connecticut, wrote to an English correspondent in 1660 concerning export: "Now the country doth send out great store of biscott, flower, peas, beife, porke, butter, and other provisions." Fish, of course, was one of the important export items. "The returns (from the West Indies) were in tropical products, which rendered colonial life more easy and comfortable."

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In the period 1652–89 the "ordinary sort" of people in Virginia, Maryland, and Delaware lived on Indian corn, beef or salted pork, kidney beans, and a few vegetables of the coarsest kind. South Carolina settlers had corn, wheat and other grains, peas and garden vegetables in great variety. Animals were easily raised. There were all sorts of English fruits and garden herbs besides many others not seen in England. Each family, in addition to corn, had its stock of pigs and cows. Newe, an English traveler, thought things dear in Charles Town: milk 2 pence a quart, beef 4 pence a pound, pork 3 pence a pound, "but far better than our English." Planters were furnished with fowl, fish and venison by the Indians. In Pennsylvania, New York, and New England many fruits and vegetables were raised. In New Jersey beer was a common drink. Cider was used chiefly in the middle and northern colonies.[10]

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[9] Winthrop, John: The History of New England from 1630 to 1649. From his original manuscripts with notes by James Savage. Vol. I, pp. 44–108. Boston: Phelps and Farnham, 1825.

[10] Hart, Albert Bushnell: The American Nation, A History. From original sources by associated scholars. Vol. 4, England in America, 1580–1652, by L. G. Tyler, pp. 101–115; and Vol. 5, Colonial Self-Government, 1652–1689, by Charles McLean Andrews, pp. 293–294, 315.

potatoes might be substituted for the cornmeal." The heritage of this traditional dietary pattern is apparent in the South today, particularly among the poverty-stricken rural population outside of the coastal area.

Lippincott[23] has stressed the simplicity of meals and the importance of corn in pioneer life in the central Mississippi Valley before 1840. "For household utensils, there were a few pewter dishes and spoons, knives, forks, tin cups for coffee and milk, a water pail, and a small gourd or calabash for water, with a pot and an iron Dutch oven. The hominy mortar and the hand mill added to the equipment." Corn yielded an abundant first crop and was easily converted into whiskey, "which was at all times a marketable article," or it was fed to hogs, or used for human food in various forms. Getting grain ground was a difficult problem since mills were scarce and roads were bad. "To save meal," said one pioneer of Ohio, "we often used pumpkin bread, in which, when meal was scarce, the pumpkin was so predominate as to render it next to impossible to tell our bread from that article."

The Norwegian emigrants to the prairies in the 1840's and 50's were astonished at the abundance of foods which were not at all common at home. An amusing exaggeration which illustrates the amazement of the early immigrants at the plenty of certain luxuries was the comment, "Even the fences were made of hams and tobacco." "At every meal a lord's fare!" exclaimed one. Another, urging his sister to come to America, said that she would have "good food, pork that is tempting to eat, and with it wheat bread, for there is plenty of that sort of food in America." However, Soren Bache[24] wrote in her diary, "Food here is not the right sort for newcomers since the usual food here is pork, beef, and wheat bread, whereas in Norway they were accustomed to coarse rye bread, milk, and cheese." At times, before the farms were well established, there must have been a serious scarcity of food. Dr. J. S. Johnson[24] stressed the importance of pork as the foundation of pioneer cookery. "Pork was a versatile dish, with many forms, and even disguises to vary the monotony. It was served fresh and salted, pickled and pressed. As sylte or headcheese, a special Christmas dish, it was served cold; as stek (roasted or fried) it was served hot." Usually fried or boiled potatoes accompanied the pork.

Blegen[24] tells us that "The economic advance of the immigrants is reflected in the story of their foods. As fortune smiled upon them, they began to emancipate themselves from the benevolent tyranny of the pig. Among other things, beef, veal, mutton, and lamb became a part of their menu." Sausages of many kinds, including summer sausage, were concocted and draped the walls of the smoke houses. Blood sausage or pudding was a favorite and there were even blood pancakes. Later, herring, smoked or pickled, and canned fish balls were imported from Norway. Salt cod was shipped out from Massachusetts. "Fowl, domestic and wild, was welcomed on immigrant tables." Yet chicken in some homes "was a treat that called for comment in letter or diary." "In many parts of the frontier other foods furnished welcome variety—rabbit, venison, antelope, bear, even squirrel. . . . And of course, eggs, though often more valuable to a skimping farmer's wife as 'cash in trade,' were part of the distinction of the American table. . . . Coffee was the most cherished of all drinks among the Norwegian immigrants, as among the Swedish." Milk was socially less significant, but economically much more significant than coffee. But living on a midwestern prairie offered difficulties to dairying. Mrs. Swenson of Iowa[24] said, "It is so hot here in summer that it is impossible to work it (milk) into cheese; besides there is no way of protecting it from flies and other pests. . . . It is futile to try to make cheese in the early summer; during the fall, however, it is possible to keep it. In summer if one has more milk than one can use while it is sweet, it simply has to be thrown to the hogs." It was difficult to keep butter from becoming rancid. "Fortunately the Norwegians were fond of sour milk." American cakes and pies as well as bread soon became favorite food of Norwegian housewives.

[23] Lippincott, Isaac: Pioneer industry in the West. J. Pol. Econ. 18: 274–278, 1910.

[24] Quoted by Theodore C. Blegen in: Norwegian Migration to America. The American Transition, pp. 190–197. Northfield, Minn.: The Norwegian-American Historical Association, 1940.

Canned Food Standards. The canners' formula for voluntary standardized descriptive labeling is identical with that of the Food and Drug Administration's formula for mandatory label statements set up after the enactment of the new Food, Drug, and Cosmetic Act in 1938. The canners' program carries beyond the legally required label statements with the voluntary addition of uniformly used terms similarly limited by equally precise standards. In establishing standards for other characteristics, varied procedures are often necessary, one of which can be illustrated by a current project.

No completely satisfactory objective measurement has ever been found for ripeness of the major fruits, but changes in color are apparent to the naked eye as ripening progresses. The National Canners Association laboratory now has developed a method which offers encouragement that the color components of canned fruits and vegetables can be measured. If preliminary tests now under way show promise, carefully controlled experimental packs of peaches and apricots, for instance, will be made this season covering a full range of maturity of all commercial varieties from all commercial growing and canning areas. The color components for each sample will be recorded by the laboratory. Identical samples will be examined and classified by a competent group of experts on the basis of sensory tests. If the measurement method proves sound and if there is correlation between the measured color components and the classifications of the experts, it will be possible to establish an objective standard for optimum ripeness. Label terms will be selected which will describe the optimum stage as well as other stages.

All of the standards already established, as well as the present dictionary of label terms, are published in the Association's Labelling Manual. The dictionary is at present incomplete. A few products are fully covered and many are partially covered. Some problems have so far defied solution. The important thing is that steadfast progress is being made, not only in creating important-to-the-consumer classifications and in selecting descriptive terms and establishing standards, but also in the number of canners and distributors who are applying the label terms to their products.—*Payne, H.: Standards in the Canning Industry. Industrial Standardization, June 1945.*

Outline of Suggested Specifications for Purchasing Processed Fruits and Vegetables. This is the first issue of this guide to appear in printed form (previous issues were mimeographed). Since the first issue of these suggested specifications in 1938, many United States standards for grades of processed fruits and vegetables have been revised, and continuous factory inspection on a voluntary basis has been introduced and is now being conducted in many canning plants throughout the country. It is believed that this outline will satisfy a definite demand of those persons who desire a guide in their food procurement operations. Subjects covered are: description of product; table of commodities, grades, and general requirements; bid samples; final inspection of deliveries; acceptance or rejection of merchandise; contractor's responsibility; reservations; payments and discounts. This and the following publications are available from the War Food Administration, Office of Marketing Services, Washington 25: *The ABC of Canned Fruit and Vegetable Labeling.* M. P. 460; *Continuous Factory Inspection and Labeling of Canned Fruits and Vegetables in Terms of U. S. Standards; Government Grading of Processed Fruits and Vegetables—Questions and Answers; What Do These Mean? (A Short Short Story About U. S. Grade A, B, C Labels); Canned Food Labels in Terms of U. S. Grades; Institutional Purchasing of Processed Fruits and Vegetables;* and *Plants Approved to Pack Processed Fruits and Vegetables Under Continuous Inspection* (as of July 1, 1945).

SOME INFLUENCES OF GLOBAL WAR UPON PROBLEMS OF DISEASE[1]

HARLEY J. VAN CLEAVE

Professor of Zoology, University of Illinois, Urbana

EACH generation is becoming aware of human diseases which were unknown or at least unrecognized by the preceding generations. As the result of closer lines of diagnosis, physicians now recognize as several different diseases ailments which their fathers lumped under a single name. On the other hand, there are many human diseases now commonly talked of in nonprofessional circles which at one time were restricted to remote parts of the earth.

In the early days of human history very limited travel tended to keep many diseases within sharply restricted geographical bounds. Some of the incidents of medical history least pleasant for contemplation have been those in which "civilized" man, in his quest for land and riches, introduced his own diseases among primitive peoples. There are many instances where these "gifts" have threatened to exterminate entire tribes. Today we are beginning to see the effects of this sort of "giving" in reverse. During recent generations civilized man has wandered so widely over the temperate zone that diseases which at one time in the past might have been limited by definite boundaries have become rather uniformly spread over the entire temperate areas of the earth. Only in the tropics where white men have had less traffic are there still numerous diseases which remain more or less characteristically bounded by geographical limits. These limits are often more emphatically drawn when they coincide with certain physiographical conditions or the distribution of definite species of animals responsible for the spread of the disease. Frequent traffic with peoples in such endemic areas of disease tends to break down natural barriers. Men stricken with a disease carry the organisms to the outside world where there is always the possibility of the disease becoming permanently established.

It will be interesting in the next decade to see what effect the enforced invasion of the tropics by millions of men from the temperate realms may have in breaking down the original barriers when these men return to their homes. It should be farthest from the intentions of all of us to impose any unreasonable restrictions or quarantines on returning servicemen. Nor should there ever be even the slightest evidence of fear or avoidance of them on their return, but genuine and wholehearted welcome can still leave opportunity for a realization that others might be called upon to share the dangers of the diseases to which they were exposed. Many health columnists have denied the possibility of tropical diseases becoming established in the United States. Such denial fails to take into consideration the ease and rapidity of present-day transportation; the fact that our southern states are essentially tropical; and the indisputable fact that satisfactory carriers for many tropical diseases are native in our fauna while others might readily be introduced. There can be no harm in a survey of some of the problems, not as a threat or as a scare to the public, but in the belief that a realization of some of the dangers involved might lead to a more intelligent practice of sanitation. Low standards of personal and public hygiene furnish the conditions under which most of the tropical diseases thrive.

New drugs and new treatments for old as well as new diseases are topics to which public attention has been widely directed in recent years. Without in the least detracting from the importance of the near-miraculous cures attained and promised, we should never for a moment forget that prevention is more effective and more to be desired than cure. At no time in history has there been such a demonstration of the effectiveness of prevention of disease as we are witnessing today. Our armed forces are operating in regions where they are subjected to diseases previously foreign and unfamiliar to them, diseases against which they lack the advantage of a gradually acquired resistance. In spite of this, the Medical Corps, the Sanitary Corps, and the Sanitary Engineers have developed methods and procedures that have kept diseases during this war down to a minimum. Even in the face of this intelligent attack on the problems of tropical medicine, the peace is apt to be marred by the introduction of strange diseases into this country. Whether these diseases, which have always been thought of as peculiar to the tropics, become established in the United States or are recognized and successfully controlled remains for the future to demonstrate.

We of the temperate region have always been inclined to extend a missionary-like feeling of pity toward the inhabitants of the disease-ridden tropics, but distance prevented this sympathy from having much basis for real understanding of their problems. With our invasion of the tropical islands the problems of tropical disease assume a new importance, for they impose immediate questions of life and death or disability upon our own young men and women. The difficulties in maintaining health which confront our armed services are far different from anything America encountered in World War I. Then our armies were engaged within the temperate zone where conditions of health and disease were fundamentally similar to those with which they had been familiar. In contrast to the bacterial and virus diseases which are the ones most frequently encountered in the temperate zone, the diseases of the tropics include many that are caused by animal parasites. Furthermore, animals of various kinds are the chief agents for the transmission of tropical diseases. Protozoa and various species of worms are important among the causes of disease in the hot countries, and mosquitoes and other insects are essential transmitters of many diseases.

Malaria, yellow fever, African sleeping sickness, bubonic plague, amoebic dysentery, typhus, blood flukes, hookworm, dengue, elephantiasis, are names of diseases remote from direct experience of most residents in the temperate clime. Even to most physicians of a generation ago, except those with missionary experience or longings, these were recognized only as names of peculiar, foreign ailments, mostly of distant countries. For pedagogical reasons they are often mentioned in textbooks and some were given incidental mention in clinical instruction, though the average practitioner never expected to meet them.

The ease with which we now encircle the globe has been one of the prime factors which has changed this attitude of indifference to diseases characteristic of distant lands. Tropical diseases and their carriers can now be spread to every corner of the earth. Whether they become established in their new surroundings remains to be seen. Quarantine laws on which we could rely for protection in the days of sailing vessels and steam trains are not geared to the speed of modern transportation. Nowadays a person might be exposed to yellow fever in central Africa and then be landed by plane in this country long before the end of the incubation period of that disease. Prompt diagnosis and treatment are the surest safeguards against the establishment of such a disease in this country. Of next impor-

[1] Based on an address before the Illinois Dietetic Association, Chicago, April 14, 1945.

SOME PICTURES OF FOOD CONSUMPTION IN THE UNITED STATES: PART I. 1630 TO 1860[1]

CALLA VAN SYCKLE[2]

AT ANY one period a variety of patterns of food consumption may be found within any country characterized by wide geographical differences, by different stages of development and urbanization, by widely varying socio-economic conditions, or by differences in race and national origin. To present the diet of only one area or class as representative of the diet of the country as a whole would constitute a very distorted picture indeed.

In building up a picture of American food consumption from the colonial period to the present, one is in danger of presenting a one-sided view of food habits, particularly for those years for which little or no statistical material is available. An extensive search of available materials with careful evaluation of the probable authenticity of reports is necessary. An example of a distorted conclusion is that by Cummings[3] in his chapter, "Food on the Farm, 1789–1840," in which he states that "A monotonous round of badly cooked food, however, was the lot of most Americans." This appears to be based on the following: statements by Ashe, whose writings have been discredited; the biting criticism of all things American in Dickens' *Martin Chuzzlewit;* a patently much exaggerated quotation from Volney, a French traveler and writer; and a passage from Cooper's *Chainbearer*, emphasizing the use of pork in the diet of the frontiersman.

Accounts of the food consumption and foods available to the American people during the colonial period and the early years of the republic are to be found in diaries, letters, old account books, the literature of the day, and reminiscences of early life such as those reported by retired wage earners to the Massachusetts Bureau of Statistics of Labor in 1872–73. Although the picture gained from these sources is not a completely rounded one, it is indicative of the kind and variety of foods available in different areas and furnishes a background against which present food habits and changes going on can be observed.

It is noticeable that throughout our history reports of physical abundance are much more common than those of scarcity. Early settlers found corn and a variety of other vegetable foods growing in the gardens of the Indians and wild fruit, game, and fish available for the taking. To these foods they soon added the meats and dairy products, grains, fruits, and vegetables of their homelands. Trade with the West Indies supplied them with sugar, molasses, and exotic fruits. The diet at times, particularly in winter, must have had little variety, but there seems to have been relatively little actual want. As the pioneers moved westward, the same potential abundance awaited them.

Accounts of food in colonial days and in the early years of the republic are likely to vary, depending on the season of the year in which the report is made and whether the account is of the more settled sections or a backwoods region. Travelers were apt to judge the food served to them by their own tastes and habits and sometimes condemned a food simply because it was different. Mrs. Trollope's opinion that hot rolls were "horrible" and corn meal dishes "all bad"[4] and Grattan's comments on salted butter are of this nature. The frontier diet, whether in the North or South, was much the same. Cured pork and cereals were the mainstays, with such additions as could be easily provided from gardens, and later from chickens and cows. The cities and areas near them provided a much wider range of foods for all, with delicacies and luxuries for the well-to-do. As the country developed, families in the lower economic levels and in the more recently settled sections were able to achieve many food items which had been common before this time, chiefly on the tables of the well-to-do in the older population centers—such foods as fresh meat in place of cured, white flour bread and cakes, butter, white sugar. However, in certain parts of the South, among the rural families at very low economic levels, the frontier diet still persists.

THE COLONIAL PERIOD

The colonial period of our history covers around 170 years—time enough for considerable development to take place in a new country. Schmidt and Ross[5] speak of it as a period of experimentation and adaptation.

In the narrow strip of territory along the Atlantic seaboard, cities soon developed. Inland was the "back country," the colonial frontier, which moved slowly westward. "Roughly speaking, it took a century of Indian fighting and tree-felling for the colonial settlement to expand into the interior about a hundred miles from the coast."[6]

The seaboard cities traded with each other, with the West Indies, and with Europe. The rest of the settled area was made up of small scattered rural communities, having relatively little contact with each other or the outside world. Families produced most of what they consumed and as they all produced about the same things there was little exchange between families or between communities. As the back country became more settled in the latter part of the colonial period, the seaboard cities became increasingly important as trading centers. Increasing prosperity brought opportunity in the more settled sections for accumulation of wealth in addition to rude comfort. In contrast, the newer frontier areas were characterized by comparative poverty and few social contacts.

The historical material available indicates that family living in the early years of colonial settlement was much more similar throughout the country than was the case in later years. There were some regional differences, of course. However, references to American food habits in the seventeenth century probably do not have to be very diverse to present a fairly representative picture of the diet of a large part of the population. This is much less true of the eighteenth century when substantial movements into the Old West had taken place. Turner calls the "Old West" the "western area intermediate between the coastal colonial settlements of the seventeenth century and the trans-Allegheny settlements of the latter part of the eighteenth century. . . . It includes the back country of New England, the Mohawk Valley, the Great Valley of Pennsylvania, the Shenandoah Valley and the Piedmont." Movement into this territory was begun between 1676 and 1700 but the most active migrations occurred after 1730. This westward expansion resulted in the formation of two distinct societies: an interior, pioneer society with little differentiation of classes and a well-established, more class-con-

[1] From unpublished doctoral thesis No. 672, "Changes in Food Consumption in the United States and Certain Factors Affecting It," Iowa State College Library, 1941. Part II, covering the years 1860 to 1941, will appear in a subsequent issue of this JOURNAL.

[2] Head, Department of Home Economics, Margaret Morrison Carnegie College, Carnegie Institute of Technology, Pittsburgh.

[3] Cummings, Richard Osborn: The American and His Food, p. 12. Chicago: University of Chicago Press, 1940.

[4] Trollope, Frances: Domestic Manners of the Americans, pp. 255, 50–52. New York: Dodd, Mead and Co., 1927. 1st Ed., London, 1832.

[5] Schmidt, L. B., and Ross, E. D.: Readings in the Economic History of American Agriculture, p. 37. New York: The Macmillan Co., 1935.

[6] Turner, F. J.: The Frontier in American History, pp. 67–68. New York: Henry Holt and Co., 1920.

scious society in the seaboard area. Greater contrasts in living conditions were now to be found between seaboard and "back country" and between levels of living in the more settled sections. These facts should be kept in mind in interpreting the examples of food habits in the colonial period.

Colonial New England. The food supplies of the Reverend William Blaxton, who established a home in Boston in 1625, have been described as follows[7]: "The blueberry and blackberry bushes that covered Beacon Hill helped to supply his frugal table, as did wild strawberries and grapes, which were close at hand in their season. . . . For a small trinket bestowed now and then among the Indians that inhabited the opposite shores, he could always be supplied with oysters, clams and other fish that abounded almost at his very door, and Indian corn, smoked or dried fish, lobsters and venison for winter's store, could be obtained with equal facility." Beans, pumpkins, squashes, and artichokes were available from the gardens of the Indians. Pigs, goats, cows, and sheep were early imported. Higginson,[8] an early Massachusetts Bay colonist, wrote: "our Governour (John Winthrop) hath store of greene Pease growing in his Garden as good as ever I eat in England." "This country aboundeth naturally with store of Roots of great variety, and good to eat. Our Turnips, Parsnips, and Carrots are here both bigger and sweeter than is ordinarily to be found in *England*. Here are also store of Pumpions, Cowcumbers, and other things of that nature."

In his *Journal*, John Winthrop[9] wrote of suffering from scurvy in the winter of 1630–31 among the "poorer sort of people" recently arrived in the colony but there is no mention of general want. He described the feasting that celebrated the arrival of his wife and children from England in November 1631: "and divers of the assistants and most of the people, of the near plantations, came to welcome them, and brought and sent, for divers days, great store of provisions, as fat hogs, kids, venison, poultry, geese, partridges, etc. . . . It was a great marvel, that so much people and such store of provisions could be gathered together at so few hours' warning." In August 1633, Winthrop wrote: "There was great scarcity of corn, by reason of the spoil our hogs had made at harvest, and the great quantity they had even [eaten] in the winter, (there being no acorns;) yet people lived well with fish and the fruit of their gardens." The open commons afforded common pasturage for cows, and we may assume that milk (and later, cheese) was generally used.

Weeden has gathered together many facts on the economy and daily order of living in the New England colonies which throw light on the foods available. "Farming was now (1632) established sufficiently, and wheat and maize were plentiful enough to require mills for grinding." Orchards were planted in the early days of settlement and by 1660 "All through the land there was plenty of apples, pears, and other fruits, musk melons, watermelons, etc." John Winthrop, Jr., Governor of Connecticut, wrote to an English correspondent in 1660 concerning export: "Now the country doth send out great store of biscott, flower, peas, beife, porke, butter, and other provisions." Fish, of course, was one of the important export items. "The returns (from the West Indies) were in tropical products, which rendered colonial life more easy and comfortable."

In a table of prices, 1630–1789, published by Weeden, white potatoes from Bermuda appear as early as 1636 but their use did not become general until culture in this country was begun some years later. One of the first reports of meals at which potatoes were served in New England is that of the Harvard Commencement dinner in 1708. After 1752 this vegetable appears fairly regularly in the price lists. Before the use of potatoes became general, turnips were the most common vegetable; then onions, carrots, and parsnips. As our trade with the West Indies developed, sugar and molasses became common food items, although much of the latter was made into rum or re-exported. The first cider presses began to work in 1650 and cider gradually replaced malt liquors as the common drink. Wine and rum punch were the social drinks. As to the other beverages, chocolate is mentioned as a breakfast drink at the Lieutenant Governor's in Dorchester, 1697, and Weeden reports that by 1727 its use was common, at least among the well-to-do. Tea first appears in Weeden's price lists in 1719, coffee in 1743.

The chief difference between the diet of the larger towns and their affluent people, and the diet of the commonality in the late colonial period, as described by Weeden, seems to lie in the butter, white bread, and fresh meat of the well-to-do in contrast to the rye and Indian-meal bread, baked beans, and salt meat and fish of the less well-to-do. Raisins, figs, almonds, oranges, and pineapples were among the luxuries of the period.

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[8] Quoted by Wm. B. Weeden in: Economic and Social History of England, 1620–1789, pp. 100, 903. Boston: Houghton, Mifflin and Co., 1894.

[9] Winthrop, John: The History of New England from 1630 to 1649. From his original manuscripts with notes by James Savage. Vol. I, pp. 44–108. Boston: Phelps and Farnham, 1825.

[10] Hart, Albert Bushnell: The American Nation, A History. From original sources by associated scholars. Vol. 4, England in America, 1580–1652, by L. G. Tyler, pp. 101–115; and Vol. 5, Colonial Self-Government, 1652–1689, by Charles McLean Andrews, pp. 293–294, 315.

fast—tea, bread and butter, hung beef, sometimes cheese; for dinner—buttermilk, bread, sugar, or fresh milk and bread, or boiled or roasted flesh, a great salad (probably cabbage) prepared with vinegar and little or no oil, sometimes cheese; for supper—bread and butter or milk and bread; very small beer or water to drink.[11] Another writer of about the same period gave an account of much more lavish meals and stressed abundance. A variety of meats, shellfish in season, fruits, cakes, and pastry was mentioned.[11]

PERIOD 1800–1860

After the Revolution there was a tremendous expansion in the region which we have called the "back country." Callendar[12] estimates that whereas before 1776 a third or possibly half of the population lived under pioneer conditions in comparative commercial isolation, by 1820 this proportion had grown to two thirds. These pioneer communities were spread over a wide territory extending from the Appalachians to the Mississippi and beyond. The opening up of Indian lands and the liberal land policy of the national government encouraged westward migration and the rapid expansion of the West continued. A rate of population growth similar to that between 1700 and 1770 occurred between the Revolutionary period and the Civil War. Between 1850 and 1860 large numbers of immigrants, largely German and Irish, came to the Mississippi Valley. The foreignborn population of the eight states of the upper Mississippi Valley more than doubled in this decade. By 1860 the states along the Mississippi no longer marked the frontier.

An important intravalley trade had developed in this inland region with prosperous trade centers along the Ohio and the Mississippi Rivers. At the same time the building of the canals and railroads connecting the East and West encouraged the development of the Great Lakes region and the establishment of new commercial centers there.

The development of the factory system in the Northeast was taking place at the same time as the migration to the Mississippi Valley. Large numbers of immigrants as well as native Americans found a place in the new manufacturing industries. The population of Massachusetts, Rhode Island, and Connecticut increased 130 per cent in the fifty years 1810–60. In the same period the number of towns of 10,000 or more in the three states increased from 3 to 26.

Great contrasts in living conditions are characteristic of this period (1800–60). Pioneer conditions determined the manner of living of a large proportion of the population. While the country as a whole was predominately rural, at the same time town life was growing and dependence on others for their food supply becoming increasingly important for many families.

The following examples of food consumption patterns show the contrast between town families and frontier families and between families of wage earners and those in higher income groups.

Reports of British Visitors. It is chiefly through the writings of British visitors to this country that we have accounts of American food habits of the backwoods, the frontier, and the town in the early years of the republic. A traveler's purposes and prejudices, the extent of his investigations, and his attitude toward the vicissitudes of travel quite naturally color all these accounts. For example, Thomas Ashe, whose description of a Kentucky backwoods breakfast has been widely quoted, is described by Henry Adams[13] as "an amusing though quite untrustworthy Englishman who invented an American journey in 1806." Nevins[14] says of Ashe, he "dealt in the sensational."

Travelers in the South who stopped at rural inns often found the diet monotonous and unpalatable. McMaster[15] points out that the inns throughout the South, outside of the large towns, were execrable. One meal was like another: bacon, eggs, hominy, coarse bread, and New England rum.

However, all meals served to travelers in inns were not poor. Many writers of the day commented on the variety and abundance of the dishes, especially meats, served at breakfast. John Melish, whose travels covered the years 1806–11, described a breakfast in a backwoods inn in Pennsylvania as "a profusion of ham, eggs, fritters, bread, butter, and some excellent tea."[16]

Henry Fearon [17] traveled extensively in this country in 1817 investigating business opportunities for a group of English tradesmen who thought of emigrating. He reported prices in the New York market in August of beef, mutton, veal, ham and bacon, dried beef, fowls, ducks, geese, turkeys, pork, butter, eggs, cheese, potatoes, cabbages, turnips, peas, milk, common fish, salmon, flour, Indian meal, bread, mustard, beer, ale, wine, apples, lobsters, onions ("an article much used"), cucumbers, brown and lump sugar, coffee, tea. "The quality of the provisions, I think is, in general, very good." He described the boardinghouse meals of a mechanic: breakfast—coffee with fish or meat; a hot dinner; supper—cheese, crackers, molasses, dried beef.

En route to Albany in September he had dinner at the "well-known Mrs. Fisher's at Scituate." "The supply for our whole party consisted of beef, a ham, two fowls, potatoes, cabbage and apple pie. They grumbled at the scantiness of the supply: for myself no epicure ever enjoyed his dinner more, and chiefly because everything was cleanly." There was a "fine orchard from which any person may take as much fruit as they please, free from charge, and without the act being considered a liberty. Mrs. Fisher makes from forty to one hundred barrels of cider per annum."

In Connecticut and Rhode Island he found numerous dairies making cheese for exportation. He describes a Sunday dinner at the home of ex-President Adams whom he found to live very simply for an "ex-king." The first course—a pudding of Indian corn, molasses and butter; second course—veal, bacon, neck of mutton, potatoes, cabbages, carrots, Indian beans, Madeira wine ("each drank two glasses"). Sunday tea consisted of poundcake, wheat bread and butter, bread made from Indian corn and rye. At his boardinghouse in Boston brandy and rum were served at dinner.

In Philadelphia, in October, he lists prices of practically the same foods as those listed for the New York market. Potatoes, onions, cabbages are the only vegetables, however. In Washington, in the winter, he finds the market supplies "neither good nor various."

[11] Earle, Alice Morse: Colonial Days in Old New York, pp. 128–153. New York: Charles Scribner's Sons, 1896.

[12] Callendar, Guy S.: The position of American economic history. Amer. Hist. Rev. 19: 90, 1913.

[13] Adams, Henry: History of the United States of America During the Administration of Thomas Jefferson. Vol. 1, p. 43. New York: Charles Scribner's Sons, 1889.

[14] Nevins, Allan: American Social History as Recorded by British Travellers, p. 25. New York: Henry Holt and Co., 1923.

[15] McMaster, John B.: A History of the People of the United States. Vol. II, pp. 8–11. New York: D. Appleton and Co., 1882.

[16] Quoted by Allan Nevins from: Travels in the United States of America in the Years 1806 and 1807, and 1809, 1810, and 1811. Philadelphia, 1812.

[17] Fearon, Henry Bradshaw: Sketches of America. Narrative of a Journey of Five Thousand Miles Through the Eastern and Western States of America, pp. 42, 95–98, 111–113, 116, 290. London: printed for Longman, Hurst, Rees, Orme, and Brown, 1818.

Mrs. Trollope (*see* footnote 2), who lived in Cincinnati for two years, 1828–30, and whose caustic remarks about American manners and habits must often have reflected the feelings of an unhappy and harassed woman, has given a detailed description of the Cincinnati market. "Perhaps the most advantageous feature in Cincinnati is its market, which, for excellence, abundance, and cheapness, can hardly, I should think, be surpassed in any part of the world, if I except the luxury of fruits, which are very inferior to any I have seen in Europe. . . . The beef is excellent, and highest price when we were there, four cents the pound. The mutton was inferior, and so was veal to the eye, but it ate well . . . the price was about the same. The poultry was excellent; fowls or full-sized chickens, ready for the table, twelve cents, but much less if bought alive, and not quite fat; turkeys about fifty cents, and geese the same. The Ohio furnishes several sorts of fish, some of them very good, and always to be found cheap and abundant in the market. Eggs, butter, nearly all kinds of vegetables, excellent and at moderate prices. From June till December, tomatoes (the great luxury of the American table in the opinion of most Europeans) may be found in the highest perfection in the market for about sixpence the peck. They have a great variety of beans unknown in England, particularly the Lima bean, the seed of which is dressed like the French haricot; it furnishes a very abundant crop, and is a most delicious vegetable. . . . All the fruit I saw exposed for sale in Cincinnati was most miserable. I passed two summers there but never saw a peach worth eating. Of apricots and nectarines I saw none; strawberries very small, raspberries much worse; gooseberries very few, and quite uneatable; currants about half the size of ours, and about double the price; grapes too sour for tarts; apples abundant but very indifferent . . .; pears, cherries, and plums, most miserably bad. The water-melons, which in that warm climate furnish a delightful refreshment, were abundant and cheap." A large proportion of the families in the town, particularly of the poorer class, had a cow which Mrs. Trollope tells us wandered about the town, returning "very regularly to give and take the morning and evening meal."

Mrs. Trollope's opinion that "the ordinary mode of living was abundant but not delicate" was shared by many British visitors. Thomas Colley Grattan, British consul in Boston, 1839–46, wrote of everyday life in American cities (particularly of New England and New York)[18]: "Excellent beef, mutton, veal and lamb are to be had in all the large cities of the United States. But the national taste certainly runs on pork, salt-fish, tough poultry, and little birds of all descriptions. Two favourite condiments are cranberry jelly and tomato sauce. They form a part of every dinner. Oysters are eaten in all ways, and in great quantities. Of vegetable dishes and certain fancy dishes with uncouth names I have spoken elsewhere. . . . Without wishing to enlarge on this topic of gastronomical taste, I cannot omit noticing more particularly the passion for salted provisions, which prevails so generally. Even butter is rarely to be met with, except at Philadelphia, that is not impregnated with salt to an almost incredible excess."

Charles Dickens[19] has written of meals on a trip to the West during his travels in this country in 1842. Breakfast on board the canal boat going to Pittsburgh consisted of tea and coffee, bread and butter, salmon, shad, liver, steak, potatoes, pickles, ham, pudding, sausages; and savoury bottles of gin, whiskey, brandy, rum in the bar hard by. A picnic meal on the prairie near St. Louis was described. "We had brought roast fowls, buffalo's tongue, ham, bread, cheese, butter, biscuits, sherry, champagne, lemons, and sugar for punch and abundance of ice. It was a delicious meal. . . ." Concerning the inns, he wrote, "The inns in these outlandish corners of the world would astonish you by their goodness . . . They had a famous notion of sending up at breakfast time large glasses of new milk with blocks of ice in them as clear as crystal. Our table was abundantly supplied indeed at every meal."

Food of the Common People in New York City and New England Towns. The meals served in the Manhattanville Insane Hospital in New York at this period (around 1840) were said to be similar to the diet of a well-ordered respectable private family living in that city.[20] The menus were as follows: breakfast—hash or cold meat, with bread and butter, coffee, milk; supper—bread and butter, tea or milk, with cheese and molasses gingerbread on Wednesdays, cheese and sugar cakes on Sundays; dinner—roast or corned meat with vegetables and pudding of rice, flour, bread or fruit on Mondays, Tuesdays, and Thursdays; soup with rice or Indian mush on Wednesdays and Saturdays, with pastry on Wednesdays; boiled fish on Fridays; cold meat with vegetables, pastry and cheese on Sundays.

This may also be a fair picture of the diet of the small businessman in New England. The food accounts of a central Massachusetts bookbinder for 1837 show that the food purchased for his household of six included approximately 6 barrels of flour, crackers, rice, rye, and about 167 lb. butter, 57 doz. eggs, cheese, milk, beef, pork, veal, lamb, mutton, poultry, fish, vegetables, fruit, about 354 lb. sugar, 28 gal. molasses, tea, coffee, honey and spices. In addition they "had a large garden from which vegetables, fruit and potatoes were obtained. No meat at breakfast or supper; had it at dinner only."[21]

Wage earners' families in the New England towns lived more frugally. The following statements are from reports made to the Massachusetts Bureau of Statistics of Labor, by retired wage earners, concerning the early part of the nineteenth century.[21] "The style of living among the farmers and mechanics (many of whom were farmers likewise), was of the very plainest description, consisting in great measure of coarse brown and barley bread; large quantities of mush, very little flour bread, and that bought of a baker who happened along once a fortnight or so; and the common sort of vegetables, with fresh and corned meats. Side dishes, so called, were rather infrequent. The general drink was cider." "In my youth . . . food quite plain and substantial, but very little flour bread eaten, and only as a luxury, now and then."

Food on the Frontier. As for the common frontier diet, at least in the South, Vance[22] has pointed out that at first the abundance of wild game led to the inclusion of large quantities of meat. As game became scarce, pork, more easily produced than any other meat, was used more and more. Conditions of southern frontier life led to the use of salt pork, corn, and molasses as the staples first of the frontier and later of the plantation slaves. "A weekly allowance for each slave of three pounds of pork, a peck of corn, a pint of salt, and molasses in proportion became standard for thousands of plantations. In winter a bushel of sweet

[18] Quoted by Allan Nevins from: Civilized America. London, 1859.

[19] Quoted by Allan Nevins from letters describing Dickens' travels in the United States included in John Forster's Life of Charles Dickens. London, 1872–74.

[20] Quoted by Elizabeth Ellis Hoyt (in an unpublished manuscript) from: A Treatise on Food and Diet, by John Pereira. A London work reprinted in New York with an American appendix. New York, 1843.

[21] Fourth Annual Report of the Massachusetts Bureau of Statistics of Labor, 1873, pp. 124–128, 311–312.

[22] Vance, Rupert B.: Human Geography of the South, pp. 415–417. Chapel Hill: University of North Carolina Press, 1932.

potatoes might be substituted for the cornmeal." The heritage of this traditional dietary pattern is apparent in the South today, particularly among the poverty-stricken rural population outside of the coastal area.

Lippincott[23] has stressed the simplicity of meals and the importance of corn in pioneer life in the central Mississippi Valley before 1840. "For household utensils, there were a few pewter dishes and spoons, knives, forks, tin cups for coffee and milk, a water pail, and a small gourd or calabash for water, with a pot and an iron Dutch oven. The hominy mortar and the hand mill added to the equipment." Corn yielded an abundant first crop and was easily converted into whiskey, "which was at all times a marketable article," or it was fed to hogs, or used for human food in various forms. Getting grain ground was a difficult problem since mills were scarce and roads were bad. "To save meal," said one pioneer of Ohio, "we often used pumpkin bread, in which, when meal was scarce, the pumpkin was so predominate as to render it next to impossible to tell our bread from that article."

The Norwegian emigrants to the prairies in the 1840's and 50's were astonished at the abundance of foods which were not at all common at home. An amusing exaggeration which illustrates the amazement of the early immigrants at the plenty of certain luxuries was the comment, "Even the fences were made of hams and tobacco." "At every meal a lord's fare!" exclaimed one. Another, urging his sister to come to America, said that she would have "good food, pork that is tempting to eat, and with it wheat bread, for there is plenty of that sort of food in America." However, Soren Bache[24] wrote in her diary, "Food here is not the right sort for newcomers since the usual food here is pork, beef, and wheat bread, whereas in Norway they were accustomed to coarse rye bread, milk, and cheese." At times, before the farms were well established, there must have been a serious scarcity of food. Dr. J. S. Johnson[24] stressed the importance of pork as the foundation of pioneer cookery. "Pork was a versatile dish, with many forms, and even disguises to vary the monotony. It was served fresh and salted, pickled and pressed. As sylte or headcheese, a special Christmas dish, it was served cold; as stek (roasted or fried) it was served hot." Usually fried or boiled potatoes accompanied the pork.

Blegen[24] tells us that "The economic advance of the immigrants is reflected in the story of their foods. As fortune smiled upon them, they began to emancipate themselves from the benevolent tyranny of the pig. Among other things, beef, veal, mutton, and lamb became a part of their menu." Sausages of many kinds, including summer sausage, were concocted and draped the walls of the smoke houses. Blood sausage or pudding was a favorite and there were even blood pancakes. Later, herring, smoked or pickled, and canned fish balls were imported from Norway. Salt cod was shipped out from Massachusetts. "Fowl, domestic and wild, was welcomed on immigrant tables." Yet chicken in some homes "was a treat that called for comment in letter or diary." "In many parts of the frontier other foods furnished welcome variety—rabbit, venison, antelope, bear, even squirrel. . . . And of course, eggs, though often more valuable to a skimping farmer's wife as 'cash in trade,' were part of the distinction of the American table. . . . Coffee was the most cherished of all drinks among the Norwegian immigrants, as among the Swedish." Milk was socially less significant, but economically much more significant than coffee. But living on a midwestern prairie offered difficulties to dairying.. Mrs. Swenson of Iowa[24] said, "It is so hot here in summer that it is impossible to work it (milk) into cheese; besides there is no way of protecting it from flies and other pests. . . . It is futile to try to make cheese in the early summer; during the fall, however, it is possible to keep it. In summer if one has more milk than one can use while it is sweet, it simply has to be thrown to the hogs." It was difficult to keep butter from becoming rancid. "Fortunately the Norwegians were fond of sour milk." American cakes and pies as well as bread soon became favorite food of Norwegian housewives.

[23] Lippincott, Isaac: Pioneer industry in the West. J. Pol. Econ. 18: 274–278, 1910.

[24] Quoted by Theodore C. Blegen in: Norwegian Migration to America. The American Transition, pp. 190–197. Northfield, Minn.: The Norwegian-American Historical Association, 1940.

Canned Food Standards. The canners' formula for voluntary standardized descriptive labeling is identical with that of the Food and Drug Administration's formula for mandatory label statements set up after the enactment of the new Food, Drug, and Cosmetic Act in 1938. The canners' program carries beyond the legally required label statements with the voluntary addition of uniformly used terms similarly limited by equally precise standards. In establishing standards for other characteristics, varied procedures are often necessary, one of which can be illustrated by a current project.

No completely satisfactory objective measurement has ever been found for ripeness of the major fruits, but changes in color are apparent to the naked eye as ripening progresses. The National Canners Association laboratory now has developed a method which offers encouragement that the color components of canned fruits and vegetables can be measured. If preliminary tests now under way show promise, carefully controlled experimental packs of peaches and apricots, for instance, will be made this season covering a full range of maturity of all commercial varieties from all commercial growing and canning areas. The color components for each sample will be recorded by the laboratory. Identical samples will be examined and classified by a competent group of experts on the basis of sensory tests. If the measurement method proves sound and if there is correlation between the measured color components and the classifications of the experts, it will be possible to establish an objective standard for optimum ripeness. Label terms will be selected which will describe the optimum stage as well as other stages.

All of the standards already established, as well as the present dictionary of label terms, are published in the Association's Labelling Manual. The dictionary is at present incomplete. A few products are fully covered and many are partially covered. Some problems have so far defied solution. The important thing is that steadfast progress is being made, not only in creating important-to-the-consumer classifications and in selecting descriptive terms and establishing standards, but also in the number of canners and distributors who are applying the label terms to their products.—*Payne, H.: Standards in the Canning Industry. Industrial Standardization, June 1945.*

Outline of Suggested Specifications for Purchasing Processed Fruits and Vegetables. This is the first issue of this guide to appear in printed form (previous issues were mimeographed). Since the first issue of these suggested specifications in 1938, many United States standards for grades of processed fruits and vegetables have been revised, and continuous factory inspection on a voluntary basis has been introduced and is now being conducted in many canning plants throughout the country. It is believed that this outline will satisfy a definite demand of those persons who desire a guide in their food procurement operations. Subjects covered are: description of product; table of commodities, grades, and general requirements; bid samples; final inspection of deliveries; acceptance or rejection of merchandise; contractor's responsibility; reservations; payments and discounts. This and the following publications are available from the War Food Administration, Office of Marketing Services, Washington 25: *The ABC of Canned Fruit and Vegetable Labeling.* M. P. 460; *Continuous Factory Inspection and Labeling of Canned Fruits and Vegetables in Terms of U. S. Standards; Government Grading of Processed Fruits and Vegetables—Questions and Answers; What Do These Mean? (A Short Short Story About U. S. Grade A, B, C Labels); Canned Food Labels in Terms of U. S. Grades; Institutional Purchasing of Processed Fruits and Vegetables;* and *Plants Approved to Pack Processed Fruits and Vegetables Under Continuous Inspection* (as of July 1, 1945).

SOME INFLUENCES OF GLOBAL WAR UPON PROBLEMS OF DISEASE[1]

HARLEY J. VAN CLEAVE

Professor of Zoology, University of Illinois, Urbana

EACH generation is becoming aware of human diseases which were unknown or at least unrecognized by the preceding generations. As the result of closer lines of diagnosis, physicians now recognize as several different diseases ailments which their fathers lumped under a single name. On the other hand, there are many human diseases now commonly talked of in nonprofessional circles which at one time were restricted to remote parts of the earth.

In the early days of human history very limited travel tended to keep many diseases within sharply restricted geographical bounds. Some of the incidents of medical history least pleasant for contemplation have been those in which "civilized" man, in his quest for land and riches, introduced his own diseases among primitive peoples. There are many instances where these "gifts" have threatened to exterminate entire tribes. Today we are beginning to see the effects of this sort of "giving" in reverse. During recent generations civilized man has wandered so widely over the temperate zone that diseases which at one time in the past might have been limited by definite boundaries have become rather uniformly spread over the entire temperate areas of the earth. Only in the tropics where white men have had less traffic are there still numerous diseases which remain more or less characteristically bounded by geographical limits. These limits are often more emphatically drawn when they coincide with certain physiographical conditions or the distribution of definite species of animals responsible for the spread of the disease. Frequent traffic with peoples in such endemic areas of disease tends to break down natural barriers. Men stricken with a disease carry the organisms to the outside world where there is always the possibility of the disease becoming permanently established.

It will be interesting in the next decade to see what effect the enforced invasion of the tropics by millions of men from the temperate realms may have in breaking down the original barriers when these men return to their homes. It should be farthest from the intentions of all of us to impose any unreasonable restrictions or quarantines on returning servicemen. Nor should there ever be even the slightest evidence of fear or avoidance of them on their return, but genuine and wholehearted welcome can still leave opportunity for a realization that others might be called upon to share the dangers of the diseases to which they were exposed. Many health columnists have denied the possibility of tropical diseases becoming established in the United States. Such denial fails to take into consideration the ease and rapidity of present-day transportation; the fact that our southern states are essentially tropical; and the indisputable fact that satisfactory carriers for many tropical diseases are native in our fauna while others might readily be introduced. There can be no harm in a survey of some of the problems, not as a threat or as a scare to the public, but in the belief that a realization of some of the dangers involved might lead to a more intelligent practice of sanitation. Low standards of personal and public hygiene furnish the conditions under which most of the tropical diseases thrive.

New drugs and new treatments for old as well as new diseases are topics to which public attention has been widely directed in recent years. Without in the least detracting from the importance of the near-miraculous cures attained and promised, we should never for a moment forget that prevention is more effective and more to be desired than cure. At no time in history has there been such a demonstration of the effectiveness of prevention of disease as we are witnessing today. Our armed forces are operating in regions where they are subjected to diseases previously foreign and unfamiliar to them, diseases against which they lack the advantage of a gradually acquired resistance. In spite of this, the Medical Corps, the Sanitary Corps, and the Sanitary Engineers have developed methods and procedures that have kept diseases during this war down to a minimum. Even in the face of this intelligent attack on the problems of tropical medicine, the peace is apt to be marred by the introduction of strange diseases into this country. Whether these diseases, which have always been thought of as peculiar to the tropics, become established in the United States or are recognized and successfully controlled remains for the future to demonstrate.

We of the temperate region have always been inclined to extend a missionary-like feeling of pity toward the inhabitants of the disease-ridden tropics, but distance prevented this sympathy from having much basis for real understanding of their problems. With our invasion of the tropical islands the problems of tropical disease assume a new importance, for they impose immediate questions of life and death or disability upon our own young men and women. The difficulties in maintaining health which confront our armed services are far different from anything America encountered in World War I. Then our armies were engaged within the temperate zone where conditions of health and disease were fundamentally similar to those with which they had been familiar. In contrast to the bacterial and virus diseases which are the ones most frequently encountered in the temperate zone, the diseases of the tropics include many that are caused by animal parasites. Furthermore, animals of various kinds are the chief agents for the transmission of tropical diseases. Protozoa and various species of worms are important among the causes of disease in the hot countries, and mosquitoes and other insects are essential transmitters of many diseases.

Malaria, yellow fever, African sleeping sickness, bubonic plague, amoebic dysentery, typhus, blood flukes, hookworm, dengue, elephantiasis, are names of diseases remote from direct experience of most residents in the temperate clime. Even to most physicians of a generation ago, except those with missionary experience or longings, these were recognized only as names of peculiar, foreign ailments, mostly of distant countries. For pedagogical reasons they are often mentioned in textbooks and some were given incidental mention in clinical instruction, though the average practitioner never expected to meet them.

The ease with which we now encircle the globe has been one of the prime factors which has changed this attitude of indifference to diseases characteristic of distant lands. Tropical diseases and their carriers can now be spread to every corner of the earth. Whether they become established in their new surroundings remains to be seen. Quarantine laws on which we could rely for protection in the days of sailing vessels and steam trains are not geared to the speed of modern transportation. Nowadays a person might be exposed to yellow fever in central Africa and then be landed by plane in this country long before the end of the incubation period of that disease. Prompt diagnosis and treatment are the surest safeguards against the establishment of such a disease in this country. Of next impor-

[1] Based on an address before the Illinois Dietetic Association, Chicago, April 14, 1945.

tance is the adequate inspection and fumigation of planes and vessels, against accidental introductions of mosquitoes and other carriers from tropical regions. One good example of the effectiveness of control measures in such problems followed the introduction of mosquitoes from Africa into Brazil. Intelligent cooperation of local and international agencies resulted in their eradication. But this was not accomplished before the malignant type of malaria which they carried had killed thousands of the inhabitants of Brazil.

Many American physicians with our armed forces are gaining firsthand knowledge of tropical disease. We are extremely fortunate in this because after the war they will know how to face the conditions which may develop in this country. Potential carriers, as intermediate hosts, of many diseases such as yellow fever, malignant malaria, plague, and elephantiasis are already present in this country. Prompt recognition of an incipient outbreak is the surest means of averting an epidemic by any of these parasitic diseases.

EDUCATION AND SANITATION AS MEANS OF PREVENTION

If we are to avoid the possibility of these threats to health expanding into the stark reality of an epidemic, sanitation and prevention in this country must come up to a level far above anything we have known in the past. This calls for cooperation and education all along the line, not to scare the public, but to make it fully aware that our conquest of the tropics carries with it the demand for an understanding of the health problems peculiar to that region of the earth. In the United States only a few centers had given careful consideration to the field of tropical medicine before the war. True, we have a few schools and institutes where tropical medicine is given as thorough consideration as in any other country, but in the future this beginning must be expanded. By so doing we will be following the lead of Great Britain, the Netherlands, prewar Germany, France, and Italy, to all of whom colonial policies had forced a realization of the importance of special study of health in tropical countries. In these European centers, schools of tropical medicine and institutes and clinics for the diseases peculiar to the tropics flourished before the outbreak of World War II. Our previous direct contact with this field which combines medicine and biology, centered around our experiences with yellow fever, dysentery, and malaria in the Spanish-American War, and later our interest in the completion of the Panama Canal. Out of the problems which we confronted in these two contacts has grown a realization of the importance of this branch of medicine and biology. Yet at the start of the present war no one in authority had any concept of an adequate program for the protection of our armies. The progress that has been made will stand as a monument to the industry and growth of the organizations for the protection of our forces in the tropics during this global conflict.

FOOD-BORNE SOURCES OF TROPICAL DISEASES

Persons in the service of our country are faced by few food-borne diseases other than the ones already too familiar in this country. In the Pacific, and especially in parts of the Orient, there are several food-borne diseases to supplement those which are prevalent in this country. Two of these are distinctive because they are the result of infection by worm parasites carried in food. The large intestinal fluke (*Fasciolopsis*) is contracted in the Orient chiefly by peeling water chestnuts with the teeth. Larvae of the trematode encysted on the vegetation are thus accidentally ingested and grow to full size in the digestive tract of man. *Clonorchis*, another fluke, has larval stages, which become encysted in the flesh of fish and if the latter is then insufficiently cooked the larvae reach maturity in the human liver. Another parasite contracted through food is the broad tapeworm of man (*Diphyllobothrium latum*). There are numerous places in Europe as well as in America where this worm exists. The worms are taken into the intestine when the food containing the parasite is insufficiently cooked or when raw fish containing the larvae is eaten as food. Furthermore, the practice in many parts of the Orient and especially in the tropics of using human excrement as liquid fertilizer for forcing growth of vegetables offers the opportunity for infection leading to many food-borne diseases. All careless handling and preparation of foods, in this country as well as in the remote regions, always carry in their wake a chance for infection. In Okinawa or in Japan a human carrier of the amoebae, commonly called the dysentery amoeba (*Endamoeba histolytica*), is a potential danger to all who come into contact with him. The shameful outbreak of this disease as the result of carelessness in Chicago hotels a few years ago gives ample proof that the effects of the amoebae are not limited to the tropics. The fact that about 70 deaths were traced to this one outbreak emphasized the importance of amoebiasis in the United States.

ANIMAL CARRIERS

Wherever people are crowded into unsanitary surroundings, conditions are set up which favor the spread of diseases transmitted by animal carriers. This principle holds for civilian groups as well as fighting units. Lice and fleas which thrive in overcrowded concentration camps, in the trenches and in populations of beleaguered cities, of themselves are a nuisance, but their status in this respect is far overshadowed by the fact that in their bodies they carry organisms capable of producing deadly epidemics. Typhus, a virus disease borne by lice, and bubonic plague, transmitted from rat reservoir hosts to man, are examples of diseases which are apt to become pyramided by war conditions. In the instance of bubonic plague, the introduction of this disease from a far corner of the earth might furnish the spark to set off a seriously impending disaster in this country. The organism which causes plague occurs in abundance in rodents native to some of our western states. The tropical rat flea, chief agent for transfer of the plague organisms from rodent to man, is relatively abundant in the Middle West. It does not require much imagination to visualize the possibilities that might result from the introduction of a few human cases of plague in the Middle West or transportation of tropical rat fleas to the West. At least there would be a potential setup for outbreaks to spread over the entire country, which in severity could approach those of the Middle Ages. Fortunately, control measures have been worked out, based chiefly on eradication of rats. It would be too bad if it would take an outbreak of the bubonic plague to stir the nation to concerted action against the rat nuisance.

By all odds the most disabling infectious human disease in the world is malaria, a scourge which has exercised marked influence upon trends in human history. All four of the species of protozoa which cause malaria depend upon mosquitoes for transfer from one person to another. Regardless of whether we are considering the relatively mild types of malaria or the malignant form of the tropics, there are three essential links in the chain of causation—human beings, malarial organisms, and mosquitoes. The lack of any one of these links breaks the chain so that malaria cannot exist. In the past only relatively few white men have invaded the tropics, thus weakening the chain so far

as the white race is concerned. Those who faced the hazards of the tropics had the protection of quinine and other specific drugs for holding the malarial organisms in check after they enter the human body. In World War II, the emphasis has been increasingly upon the third link, the mosquitoes. In this last-named effort some of the most astounding results have been accomplished, in many ways equal in importance to the discovery of new specific drugs such as atabrine to replace our lost supply of quinine. During the early months of the present war prime attention was directed toward the drainage of swamps and treatment of standing water. The latter involved laborious hand treatment of water with poisons or oil to kill the developing mosquitoes. As time went on, new chemicals and new methods have been introduced. The most astounding results have been obtained through the use of a chemical designated as DDT, one of the most significant developments in preventive measures to come out of the present war. These initials, which sound like a cryptic reference to a government agency, refer to dichlorodiphenyl-trichloro-ethane, tons of which have been used, not only against malarial mosquitoes but with equal efficacy against body lice, the carriers of typhus fever. A wholesale method of distributing DDT has been perfected to replace the laborious hand methods of treating water areas in the immediate vicinity of troops. Airplanes spread the dust over an entire area. In some recent advances in the Pacific, it is reported that fleets of planes have treated an entire island with DDT before any troops were set ashore.

The fact that malarial organisms may persist in the body of a person who had apparently made complete recovery lends a new hazard to medical practice. There are cases on record where one of the three essential links in malarial causation was by-passed, yet the disease was transmitted from one human to another. For example, the recipient of a blood transfusion from a former malarial patient who had shown no symptoms for years, died from malignant malaria.

It is not the object of this paper to catalog and describe all the diseases of man which might become more widely spread beyond the tropics following the war. However, in addition to the few which have been mentioned there are several others which seem to call for brief attention. All the diseases here mentioned are rather distinctively characteristic of the tropics and like all the others previously mentioned are either caused by protozoa and worm parasites or some animal at least is responsible for transmission.

Dengue or breakbone fever, a virus disease transmitted by the bite of a mosquito, is widely scattered through many tropical countries. In the past there have been a number of widespread epidemics in our southern states though cases have occurred as far north as Massachusetts.

Elephantiasis, characterized by inordinate swellings of some parts of the body such as a leg, an arm, a breast, or the scrotum, is produced by minute roundworms mechanically blocking the lymph vessels. Mosquitoes carry the microscopic larvae. Natives in the South Pacific rarely show symptoms of this disease before middle life, but many of our young men have already become its victims. There is no assurance that foci of infection might not become established on this continent.

There are three species of blood flukes which live in the human blood stream, producing marked pathological symptoms. All of these depend upon certain species of snail in which they undergo an essential portion of their life history. Larvae, called cercariae, leave the body of a snail host and from the water penetrate into the skin of the human. One species of snail occurring in the United States has been found capable of carrying the human blood flukes. This suggests that the parasites might become established in the waters of our southern states.

River fever, or as the Japanese call it *Tsu tsu gamu shi* fever, is carried by larval mites in many parts of the Pacific area. Unfortunately the DDT, so effective against mosquitoes, has no effect upon these mites.

An anomalous condition exists on our west coast regarding the occurrence of the organism which causes Chagas' disease. In South and Central America this trypanosome is carried by the bite of "kissing bugs" and produces serious effects in man. Related bugs on our own west coast carry what has been determined as the identical species of trypanosome, yet no cases of human infection have been reported. No one knows the full explanation of this situation. Some factor of habit or habitat is possibly different from that found farther south where the disease is common. At least there is hope in the fact that the presence of disease organisms is not always accompanied by the occurrence of the disease.

No mention of diseases in wartime can ignore the problems of venereal disease. Armies have always carried these scourges in their midst. None of the problems of decency and morals are essentially different for men in the service from those confronting civilians. To all forward-looking people the promise of speedy cure of some of the venereal infections by penicillin opens the question of moral consequence upon removal of fear from social diseases of this kind.

BLACK MARKET MEATS

To gain a fairly complete picture of the effects of war on health problems, some few conditions which follow in the wake of war should be mentioned. These concern, among other things, health conditions for the people of the countries invaded as well as for our own civilian population. These topics will be but lightly touched upon at this time.

In narrating the dangers which we confront in our contacts with the strange diseases of the tropics it would be unfair if mention were not made of the reciprocal traffic in disease. We are carrying our own distinctive diseases to the residents of the tropics, thereby tending to break down the geographical limits that might have existed before travel became so easy, as mentioned earlier in this paper.

Malnutrition, especially among the children of the recently liberated nations of Europe and in prison and concentration camps, presents a series of problems the full impact of which on society may not be realized for another generation. Here at home there is little danger of nutritional deficiencies becoming serious as a result of war conditions. However, the public confronts one series of threats to health that is but rarely mentioned as a corollary of the war situation. I refer to the dangers of disease incipient in the operations of the black market in meats. Under peacetime controls, most of the meat which reaches the consumer is subjected to rigorous inspection. Such supervision is wholly lacking in the illegally operated establishments and in the small, illicit slaughterhouses. Under such conditions the feeding of garbage to hogs is apt to pyramid the dangers of worm infections, especially of *Trichinella*. Aside from the moral and legal aspects of the black market dealings, we must realize that through these channels the unsuspecting public is subjected to the dangers of infection by *Trichinella* and by various tapeworms, the larvae of which are carried especially in pork, beef, veal, and some fish. As a safeguard against the inordinate spread of these diseases of animal causation here at home, the injunction urging thorough cooking of all meats and meat products stands as our first line of defense.

THIAMIN CONTENT OF CEREALS BEFORE AND AFTER TREATMENT WITH CARBON DISULFIDE AND METHYL BROMIDE TO DESTROY INSECTS[1]

CAREY D. MILLER

Nutrition Department, Hawaii Agricultural Experiment Station, University of Hawaii, Honolulu

In 1940 and 1941 upon the recommendation of the military authorities and the civilian committees on food production and storage, families in Hawaii were advised to maintain in their homes a six-month supply of foods. The Nutrition Department of the Hawaii Agricultural Experiment Station and the Home Economics Department of the University of Hawaii prepared a list of foods suitable for storage in homes on the basis of approximate quantities needed per person per week. Accompanying this list were precautions for storing and replenishing supplies to keep the foods in a relatively fresh condition.

With the approval of the Territorial Board of Health, directions were also given for the fumigation of flour, other cereals, and dried legumes with carbon disulfide. The question then arose as to whether the use of such a fumigant might have any effect on the thiamin content of cereals, especially the whole grain cereals which were recommended because of their greater nutritive value.

An experiment was therefore carried out to determine the effect of carbon disulfide, and later, of methyl bromide, upon the thiamin content of treated cereals. The use of carbon disulfide is the most practical method for the home but methyl bromide is used commercially to a great extent.

Spencer *et al.* (1) have recently summarized work of others relating to the use of methyl bromide which they point out is being widely used "as a fumigant for foodstuffs." They report an extensive series of experiments designed to study any possible deleterious effects upon experimental animals fed for a year on diets fumigated with different amounts of methyl bromide. They conclude that even when foods fumigated commercially with methyl bromide and properly treated make up a large part of the human dietary there is not likely to be any ill effect.

Since no data have been reported to indicate the effect of fumigation with these two chemicals upon the vitamin content of foods, it is believed that these experiments will be of interest.

EXPERIMENTAL

Three cereals, brown rice, whole wheat flour, and rolled oats, were tested for thiamin by the rat-growth method (2).

A portion of the original package or bag was removed and used for the control group fed the untreated cereal. The remaining cereal in each case was treated with carbon disulfide by the method recommended for household use to prevent or reduce spoilage by flour beetles, weevils, and fungus, as follows:

A bag containing the cereal was placed in a glass or metal container that could be made airtight. For each 1 to 3-lb. lot of cereal used in these experiments 1 tsp. carbon disulfide was poured into a small, shallow container and placed on top of the cereal. The container was closed tightly and allowed to remain for 24 hr. The cover was then removed, a piece of cheesecloth tied over the opening, and the can allowed to stand 24 hr. or until the volatilized carbon disulfide had escaped and little or no odor of the fumigant remained in the product. The cereals were then stored in containers with tight-fitting covers and samples removed twice a week for feeding purposes.

The rice was cooked without washing, as described in a previous paper (3), and fed in the cooked state. The whole wheat flour and rolled oats were fed in the raw state.

Only one cereal, whole wheat flour, was treated with methyl bromide by the usual commercial process. A portion of the untreated flour was reserved for the control group of animals. This flour was not from the same lot as that treated with carbon disulfide.

TABLE 1

Summary of the results of feeding fumigated and untreated cereals as the sole source of thiamin

DAILY SUPPLEMENTS	NUMBER OF ANIMALS	AVERAGE WEIGHTS			MEAN GAINS		THIAMIN PER 100 GM.
		At start	At depletion	Final weights	In 3 weeks	Standard deviation	
		gm.	*gm.*	*gm.*	*gm.*		*mcg.*
Series I. Effect of carbon disulfide							
First Depletion							
0	11	38	64	48			
Thiamin, 3 mcg.	15	38	66	107	41 ± 2.8	10.7	
Brown rice, untreated, 3 gm. cooked = 1.2 gm. dry	12	38	67	107	40 ± 2.5	8.8	96 (240 raw)
Brown rice, treated, 3 gm. cooked = 1.2 gm. dry	13	38	68	107	39 ± 1.7	6.1	93 (230 raw)
Second Depletion							
Thiamin, 4 mcg.	16	107	104	154	50 ± 3.0	11.9	
Whole wheat flour, untreated, 0.6 gm.	13	104	102	129	27 ± 2.0	7.2	368
Whole wheat flour, treated, 0.6 gm.	12	106	104	127	23 ± 1.5	5.1	334
Rolled oats, untreated, 0.6 gm.	13	100	97	130	33 ± 3.7	13.2	430
Rolled oats, treated, 0.6 gm.	14	99	96	129	33 ± 2.9	10.7	430
Series II. Effect of methyl bromide							
First Depletion							
0	8	35	61	40			
Thiamin, 3 mcg.	13	39	66	95	29 ± 2.1	7.5	
Whole wheat flour, untreated, 0.6 gm.	13	40	66	90	24 ± 2.0	7.3	414
Whole wheat flour, treated, 0.6 gm.	13	39	67	88	21 ± 2.1	7.5	375

RESULTS AND DISCUSSION

The results, as summarized in Table 1, show no significant difference between the values for the samples of rice

[1] Published with the approval of the Director as Technical Paper No. 122, Hawaii Agric. Exper. Sta. Received for publication September 5, 1944.

and rolled oats treated with carbon disulfide and those not so treated.

Judging from the statistical analysis of the data for whole wheat flour, it appears that the differences between the mean gains of the rats fed treated and untreated flour, whether the fumigant was carbon disulfide or methyl bromide, are not significant even though there appears to be about 10 per cent less thiamin per 100 gm. in the treated samples.

The results of the experiments reported here indicate that it is unlikely that the use of common fumigants such as carbon disulfide or methyl bromide will have any destructive effect upon the thiamin content of cereals rich in this vitamin.

The Board of Agriculture and Forestry (4) in Honolulu has found it economical and practical to fumigate foodstuffs with methyl bromide since the beginning of the war. There is probably no reason why this practice should not be continued in peacetime to prevent spoilage of a number of foods.

The author and others have a definite impression that fortified flour, in the warm moist climate of Hawaii, tends to become infested with flour beetles more readily than does unfortified flour. Williams (5) and others have pointed out the need of all lower forms of life for thiamin and it seems quite probable that insects find fortified flour a more satisfactory medium for growth and reproduction than unfortified flour. Routine fumigation of whole grain and fortified cereals with methyl bromide might well become an established practice.

SUMMARY

Brown rice, rolled oats, and whole wheat flour fumigated with carbon disulfide by a household process, to destroy insects, retained their original thiamin content after treatment.

The thiamin content of whole wheat flour treated with methyl bromide by a commercial process was likewise unaffected.

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Calcium Requirement During Growth

Human beings, unlike rats, do not utilise 100 per cent of the calcium they consume; perhaps it is seldom in his lifetime that the average person utilises even one half of that amount. Although relatively few studies have been made of man's capacity to utilise dietary calcium, and although only three sources of calcium, *i.e.*, milk, carrots, and two calcium salts were studied, the combined data are sufficiently uniform to justify the conclusion that, under the conditions inherent in the studies, utilisation of food calcium by man is not efficient.

In assessing the nutritive requirements of the animal body during its developmental stage, recognition must be given to two fundamental needs. One of these needs is expressed by the term "maintenance requirement" and refers to the quantity of the nutrient needed to maintain the physico-chemical processes of the body at their existing level. The other requirement is for growth specifically, for the progressive increase in size and for the differentiation of tissue which accompanies growth.

In all probability, children do not have a measurable maintenance requirement for calcium. If this is true, then the total requirement for this mineral is determined by growth, by the rate at which new body tissue is formed, and by the rate at which the previously formed skeletal tissues undergo differentiation from the stage of cartilage, and a condition of partial calcification physiological for bone at the time of formation, to the stage of calcification consistent with maturity. The problem of the determination of the calcium requirement therefore is simplified. Two direct approaches to its elucidation might be used, namely, calcium analyses of the bodies or the skeletons of children of various ages, and calcium balance data obtained with children at different stages of growth. Unfortunately, however, calcium analyses of normal children beyond the foetal stage do not exist and the storages of calcium observed in children held under experimental conditions are too variable to be of much value. Therefore, the only recourse that remains is to make deductions from the available fundamental data relating to growth and calcification of the body.

The average daily accretion of calcium during the first year of life decreases rapidly from a value approximating 600 mg. during the first month to 172 mg. by the end of the first year. The quantity of milk which would induce such retentions during the first month, a period at which the infant can utilise approximately 35 per cent of the calcium in milk, would approximate 1½ liters of cow's milk or 5 to 6 liters of mother's milk each day. Obviously such quantities of milk could not be ingested by infants of this age. Furthermore, the average mother could not produce enough milk to meet her infant's demands for calcium. By the fourth month of life, the baby on cow's milk, providing 2 oz. milk per pound bodyweight, would receive an amount of calcium only sufficient to meet the day to day needs. By the beginning of the fifth month such a formula would allow for a replenishment of the skeletal tissues formed during the preceding months. But this is not true for the breast fed baby even at the age of 6 months; unless the mother can secrete as much as 2½ to 3 liters of milk daily, a volume attained by few women, she could not fulfill her baby's daily needs, much less make good the earlier deficiency. However, if the infant at this age is well on the way to being weaned from mother's milk, the quantities of cow's milk provided in order to satisfy the baby's needs for nutrients other than calcium will ensure sufficient calcium for the day to day needs.

During the pre-school years, if calcium is utilised at the rate of 20 per cent, no more than 500 mg. calcium need be provided in the diet of the average boy of this age. From the time the boy reaches school age to the time when the pubertal spurt of growth starts, his daily calcium need increases from a value of approximately 100 mg. to one of 200 mg. If children of this age can utilise little more than one fourth of the calcium they ingest, then it is probable that the quantities of dietary calcium consistent with the above growth needs would increase from 500 mg. at 6 years to 800 mg. at about 13 to 14 years of age. A daily intake of about 1.1 gm. is indicated at the peak of the growth spurt. After puberty, the rate of skeletal growth rapidly decreases although the bodyweight may still be increasing.

Epiphyseal closure in the long bones takes place in the average boy between the age of 15 and 18 years. It is probable, however, that that quantity of calcium which suffices for adults, *i.e.*, 10 mg. per kilogram, as an average, would also be sufficient during this period of final calcification.

Caution should be exercised in applying to a given child any recommendations made herein since the requirement for calcium has been predicated on the assumption that the "average" child will utilise as much as one fifth of the calcium he ingests. Finally, it should be pointed out that the suggestions concerning the requirement for dietary calcium refer to the child who has been well nourished with respect to calcium from the time he was born. Whether or not there are many children who can fulfill such qualifications is not known.—*Excerpts from The Requirement for Calcium During Growth, by Julia Outhouse Holmes, in Nutrition Abstr. & Rev., April 1945. Reprints are available at 1 shilling, on application to the Secretary, Nutrition Abstracts and Reviews, Rowett Institute, Bucksburn, Aberdeen, Scotland.*

EFFECT OF QUANTITY PREPARATION PROCEDURES ON VITAMIN RETENTION AND PALATABILITY OF DEHYDRATED POTATO SHREDS[1]

FAITH FENTON, MARGARET ALBURY, KATHRYN VISNYEI, J. F. THOMPSON, AND ELLA GLEIM

State College of Home Economics, Cornell University, Ithaca, New York

BECAUSE large amounts of dehydrated vegetables are being sent to our armed forces in certain areas of the world, a knowledge of the nutritive value of these foods as they are eaten is valuable. This study was made to determine: (a) the effect of quantity preparation procedures on the retention of ascorbic acid, thiamin, riboflavin, and niacin in dehydrated potato shreds, in amounts to serve 50, by four different methods; (b) the further effect on the vitamin retention of keeping the prepared potatoes warm for 1½ and 3 hr.; and (c) the palatability scores of the prepared potatoes. The object was to determine the methods of preparation which would yield a product with optimum retention of vitamins and palatability.

HISTORY OF THE VEGETABLE

The dehydrated, precooked, shredded potatoes were processed by the Ross Packing Company at Selah, Washington. They were of the Early Russet or Netted Gem variety, grown in the Yakima Valley in rather light or sandy soil under irrigation. They were harvested September 6, 1943, washed, graded, brought directly to the plant, and processed September 8. They were blanched 18 min. at 100°C. (212°F.); dried in a recirculating-tray-system dehydrater to a moisture content of approximately 5½ per cent; packed within 8 hr. in 5-gal. tin cans having a capacity of about 17½ lb. dehydrated potatoes; shipped by freight and received in the laboratory October 25, 1943, where they were stored at −16°C. (0°F.) until used for the cooking studies which were completed within 4 mos. No information regarding the treatment of the potatoes during shipping was available.

EXPERIMENTAL METHODS

Cooking and Holding. In each of the four cooking methods, 1360 gm. dehydrated potato shreds, 4370 gm. water, 680 gm. evaporated milk mixed with 680 gm. water, and 60 gm. salt were used. This amount furnished 50 servings. Before the milk was added, 400 gm. potatoes had been removed at the various stages of sampling so that the amount of rehydrated potato to which the milk was added was comparable to the amount specified in the directions found in the can—the same as those in the War Department Technical Manual TM10-406 *Cooking Dehydrated Foods*. In Methods 1 to 3, the evaporated milk and water were heated to 88°C. just before they were added to the beaten potatoes; in Method 4 they were at room temperature when added. The potatoes were prepared as mashed potatoes by the following methods:

Method 1. Rehydrated in boiling water in covered aluminum dishpan 15 min., having been stirred at the end of the first 10 min., salt added and potatoes beaten in mechanical mixer, with wire whip, 15 min. at high speed; hot milk added, and potatoes mixed 1 min. at low speed and 4 min. at high speed. Potatoes were scraped from the sides of the mixing bowl with a stainless steel skimmer at the end of the first 10 min. and at each change of speed. This method of preparation was included with the directions packed in the can of potatoes. Two 1-kg. portions of these mashed potatoes were held in aluminum bootlegs[2] in institution-type warmer at 60°C. 1½ and 3 hr.

Method 2. Rehydrated 30 min. in boiling water in covered aluminum dishpan placed in institution-type steamer which had been preheated to 99°C., then turned off. Potatoes were stirred with stainless steel skimmer at end of 15 min. At end of 28 min. steam was turned on and temperature of steamer reached 99°C. within 2 min.; that of potatoes, 98°C. Salt was added and potatoes were beaten in mechanical mixer with wire whip 3 min. at high speed, hot milk then added, and potatoes beaten at low speed ½ min., at medium speed ½ min., and at high speed 1 min. Potatoes were scraped from sides of mixing bowl at each change of speed. This method was used because it was thought it would result in better retention of ascorbic acid and a hotter, fluffier product when served. Three kilograms of these potatoes were held in an aluminum bootleg placed in a bain-marie for 1½ hr. at a temperature of about 71°C.

Method 3. Rehydrated in boiling water (kept at 93°C.) in covered aluminum dishpan placed over low gas flame, salt was added, and potatoes were beaten by hand with wooden paddle 15 min. Hot milk was then added and potatoes beaten with paddle 5 min. This method was according to directions packed in the can of potatoes. Three 1-kg. portions of these potatoes were held in aluminum bootlegs in institution-type warming oven at 60°C. 1½ hr.

Method 4. Potatoes prepared as baked potatoes by: rehydrating ½ hr. in covered aluminum dishpan containing water at 20°C., transferring to heavy aluminum roast pan, 19½ x 14 x 4 in., salt and milk added, and potatoes baked 1½ hr. at 177°C. During baking, potatoes were stirred with a stainless steel skimmer at end of 15 and 30 min. This method, it was thought, would result in a palatable product which would require little actual preparation time. After samples were removed, the pan was held in an institution-type warming oven at 60°C. 1½ hr.

Sampling. Each of the above cooking methods was repeated 3 or 4 times. Before each cooking study, analyses of the dehydrated potato shreds were made and losses owing to cooking were calculated from these results in order to rule out the effect of any changes because of storage or variation from can to can.

During preparation, 200-gm. portions of the rehydrated and of the beaten potatoes were weighed out of each cooking, except in Method 4, in which 400 gm. rehydrated potatoes was removed because there was no beaten sample. This method of removing samples delayed preparation only slightly. The amounts taken were considered representative since the potato shreds were small, completely rehydrated, and, in the case of the beaten potatoes, well mixed.

Samples of the mashed and the held mashed potatoes consisted of portions removed from the top, bottom, center, and sides of the container. In sampling the hash-brown potatoes, 2-in. squares were cut from a corner, a side, and three central portions of one half the pan. After holding, squares were cut in the same pattern from the undisturbed half of the pan.

The milk and water were mixed together in equal proportions by weight and heated, except in Method 4 in which the liquid was not heated. The desired amount was weighed out for addition to the potatoes, and the rest, usually about 200 ml., was used for analysis.

Samples for the determination of ascorbic acid were covered with the extracting acid. Samples for the combined determination of thiamin and riboflavin were weighed in a room with controlled illumination. Niacin samples were weighed, frozen and stored (for not more than 2 weeks) until analyses could be made.

Analysis. Samples were taken in duplicate.

Ascorbic acid was determined by the method of Bessey and King (1) as modified by Mack and Tressler (2) and further altered by use of the Waring Blendor. Two grams dehydrated potato shreds, 10

[1] The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Cornell University. Received for publication April 7, 1945.

[2] A bootleg is an aluminum pan without handles, resembling in shape the upper part of a double boiler. The upper diameter was 8½ in., the pan was 11 in. deep and held 2 gal.

gm. each of rehydrated, beaten, and mashed potatoes, and of the hash-brown potatoes, and 20 ml. milk and water mixture, were made to 100 ml. with freshly prepared 1N sulfuric acid containing 2 per cent metaphosphoric acid. After grinding and centrifuging the samples, 25-ml. aliquots in 25 ml. 8 per cent acetic acid were titrated with 2,6 dichlorophenol-indophenol. The dye was standardized daily against fresh solutions of ascorbic acid.

Thiamin and riboflavin were determined by the combined method (3) and modified by the thiochrome method adapted for vegetables (4). Five grams dehydrated potatoes, 25 gm. rehydrated and prepared potatoes, and 20 ml. milk were ground in 375 ml. 0.1N sulfuric acid in the Waring Blendor, heated to boiling, refluxed 30 min., cooled, and 25 ml. 2.5 M. sodium acetate containing 0.5 gm. of the enzyme Clarase added and the samples incubated 2 hr. at 50°C. The extracts were then made up to 500 ml. with distilled water, filtered, and 50 ml. of the filtrate was run through the adsorption apparatus and the riboflavin eluate read as described by Conner and Straub (3). The method of Moyer and Tressler (4) was used for thiamin readings.

Niacin determinations were made by a microbiological method essentially that of Snell and Wright (5). Extracts of the samples were made in two ways: by heating a water suspension of the sample, and also one of the sample plus 50 ml. 1.5 per cent sodium hydroxide at 15 lb. pressure 15 min. One gram dehydrated potatoes and 1.5 gm. rehydrated, beaten, and mashed potatoes were used, the extracts filtered, and the water-extracted filtrates made to 250 ml. with water. The alkaline-extracted filtrates were brought to a *p*H of 6.5–7.0 and made to a volume of 500 ml. Ten milliliters of the milk was water-extracted, made to a volume of 100 ml. and the extracts set up at 1, 3, and 5-ml. levels.

Total solids were determined by drying approximately 10 gm. dehydrated potatoes in aluminum drying pans 6 hr. at 70°C. under 28 to 30-in. vacuum. Samples (20-gm.) of the rehydrated, beaten, and mashed potatoes were dried under the same conditions 48 hr.

Statistical Treatment. To determine whether the observed differences between the effects of the different cooking and holding methods on the vitamin contents of the various vegetables were real or merely attributable to experimental variation in the method of study, a statistical analysis of representative data was made.

The percentage retention of vitamin in the vegetable as served, calculated on the moist basis by using the weight of the potatoes at each stage of the preparation, as the figure of greatest importance in the studies, was selected for the statistical treatment. Standard errors were calculated and used in ascertaining by the "t-value" method (6) the significance at the 5 per cent level of the difference of the observed retention of a vitamin between: the different cooking methods; the different holding methods, if any; and the cooking methods and the holding methods. The discussion of results was based on the treatment.

Palatability Tests. Potatoes prepared by the four methods described above were scored for flavor, texture, and appearance by at least 6 experienced judges, and 5 points allowed for each factor so that the maximum score possible was 15. In addition, palatability studies were made on the potato shreds prepared in household amounts to determine the effect on palatability of substituting fresh milk for evaporated milk, of adding margarine, and of adding potato starch.

DISCUSSION OF RESULTS

The effects of four methods of preparation and holding on the ascorbic acid, thiamin, riboflavin, and niacin content of dehydrated potato shreds are shown in Table 1. The results of the niacin determination using water extraction and alkaline hydrolysis have both been reported in the tables. Since probably the higher values obtained when alkaline hydrolysis was used were due to more complete extraction of niacin and not to substances other than niacin, only the results of alkaline hydrolysis will be used in this discussion.

Vitamin Content. The dehydrated potatoes contained on the dry basis an average of 76.5 mg. ascorbic acid, .323 mg. thiamin, .148 mg. riboflavin, and 6.15 mg. niacin per 100 gm. The percentage retentions are also given in Table 1.

Potatoes rehydrated by several methods of soaking in boiling water showed little difference in ascorbic acid retention. More ascorbic acid, 94.4 per cent, was retained in the potatoes rehydrated for 30 min. in cold water (Method 4). No appreciable loss of thiamin, riboflavin, or niacin was observed during any of the rehydration methods. Because the water used for rehydration was completely absorbed by the potatoes during rehydration, no loss of any of the vitamins due to solution occurred. Loss of ascorbic acid was due to destruction alone, and apparently there was no destruction of any of the B vitamins.

The potatoes beaten by Method 2 retained significantly more ascorbic acid than those beaten by Method 1, which, in turn, retained more than those beaten by Method 3. Thiamin, riboflavin, and niacin retentions were not appreciably affected by beating.

The heated milk and water (13.2 per cent total solids) contained on the dry basis 3.51 mg. ascorbic acid, 0.185 mg. thiamin, 1.25 mg. riboflavin, and 0.675 mg. niacin per 100 gm. Since this added milk contained less ascorbic acid, thiamin, and niacin, and more riboflavin per gram than did the beaten potatoes to which it was added, the mashed potatoes contained on the dry basis about one fourth less ascorbic acid, slightly less thiamin and niacin, and about twice as much riboflavin as did the beaten potatoes. The percentage retentions, however, which were calculated including the weight and the vitamin content of the added milk, were not changed appreciably. The mixing itself resulted in a slight loss of ascorbic acid, and no appreciable loss of the other vitamins.

The unheated, undiluted milk (26.4 per cent total solids) added to the rehydrated potatoes before they were baked, contained on the dry basis 5.36 mg. ascorbic acid, 0.191 mg. thiamin, 0.961 mg. riboflavin, and 0.867 mg. niacin per 100 gm. During the 1½-hr. baking period, the oven-hash-brown potatoes lost 45.2 per cent or almost half their ascorbic acid. The thiamin, riboflavin, and niacin content did not change appreciably.

At the end of a 1½-hr. holding period, in either the institution-type warming oven or bain-marie, very little ascorbic acid was retained in any of the mashed potatoes. At the end of a 3-hr. holding period, no appreciable amount was retained. The enmeshed air and warm temperature probably permitted further oxidation of ascorbic acid, as the temperature of holding (60°C.) is considered the critical temperature for the destruction of ascorbic acid.

No statistically significant loss of ascorbic acid from the hash-brown potatoes occurred during holding undisturbed for 1½ hr. in the baking pan placed in the institution-type warming oven. A brown crust had formed over the top.

The percentage retentions of thiamin, riboflavin, and niacin were not appreciably decreased by holding the mashed potatoes, nor were the riboflavin or niacin retentions of the hash-brown potatoes held for 1½ hr. The thiamin retention in the hash-brown potatoes, however, was significantly decreased during holding.

After 1½ hr. holding, the hash-brown potatoes retained a higher percentage of ascorbic acid, but a lower percentage of thiamin, than did any of the mashed potatoes after the same period of holding.

The vitamin content and the palatability score of a 100-gm. serving of the dehydrated, shredded potatoes after preparation, and after holding, by four methods are given in Table 2. The range of vitamin content of the mashed potatoes per 100-gm. serving was as follows: ascorbic acid, 5.01 to 6.85 mg.; thiamin, .0673 to .0683 mg.; riboflavin, .0589 to .0738 mg.; niacin, 1.07 to 1.31 mg. The content

TABLE 1

Effect of preparation and holding on the ascorbic acid, thiamin, riboflavin, and niacin content of dehydrated potato shreds

COOKING METHOD	TREATMENT OF VEGETABLE	TOTAL SOLIDS	VITAMIN CONTENT*					AVERAGE VITAMIN RETENTION ± S.E.** AND RANGE					REPLICATIONS‡
			Ascorbic Acid	Thiamin	Riboflavin	Niacin†	Niacin††	Ascorbic Acid	Thiamin	Riboflavin	Niacin†	Niacin††	
		%	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	%	%	%	%	%	*No*
1	Dehydrated	95.9	80.3	.331	.160	—	6.09						
	a. Rehydrated 15 min. in boiling water	23.4	59.4	.310	.126	—	6.07	74.1 59–82	92.4 80–103	81.6 57–100	—	93.7	4
	b. Beaten 15 min. in electric mixer	26.3	37.5	.317	.106	—	6.69	51.5+0.221 50–53	109.7 99–130	79.9 52–102	—	119.7	4
	c. Hot milk and water added, beaten 5 min. (ready to serve)	24.7	27.3	.274	.238	—	4.73	43.9 ± 2.39 35.6–49.2	103.9 ± 3.47 92–113	83.2 ± 11.8 52–118	—	94.6	5
	d. Held in warmer at 60°C. 1½ hr.	24.1	8.52	.288	.263	—	5.67	13.3 ± 2.16 8–18	105.4 ± 3.83 98–117	88.2 ± 8.65 57–108	—	116.1	5
	e. Held in warmer at 60°C. 3 hr.	24.8	2.09	.292	.270	—	6.00	2.0 ± .0735 0–3	106.6 ± 2.81 100–115	88.4 ± 11.01 57–106	—	120.9	4
2	Dehydrated	96.0	68.5	.322	.173	2.55	5.33						
	a. Rehydrated 30 min. in boiling water in preheated steamer	24.1	53.6	.306	.154	2.73	6.12	77.4 66–94	96.7 96–101	93.9 86–106	105.1 102–107	113.6 100–128	4
	b. Beaten 3 min. in electric mixer	25.5	39.3	.308	.138	2.51	6.23	60.0 ± 2.27 55–65	103.7 96–106	89.7 71–115	1.305 95–112	125.6 103–146	4
	c. Hot milk and water added, beaten 2 min. (ready to serve)	23.0	29.8	.293	.321	2.39	5.56	51.2 ± 2.68 46–58	103.8 ± 4.37 94–115	95.4 ± 7.66 82–114	108.0 ± 3.07 100–114	122.2 ± 8.83 108–145	4
	d. Held in bain-marie at 71°C. 1½ hr.	23.5	5.99	.288	.321	2.12	4.92	10.2 ± .0586 8–12	102.0 ± 4.75 91–113	94.9 ± 7.06 76–110	95.8 ± 2.15 93–101	108.2 ± 3.41 92–130	4
3	Dehydrated	97.9	87.1	.329	.138	2.96	6.39						
	a. Rehydrated 10 min. in boiling water over low gas flame	24.1	60.3	.325	.139	3.20	6.92	68.3 58–81	97.2 94–102	97.0 95–102	104.1 101–108	106.5 102–112	4
	b. Beaten 15 min. with wooden paddle	26.3	28.2	.325	.142	3.01	7.26	33.3 ± 5.19 20–44	108.9 106–114	109.0 106–120	111.0 104–117	115.6 107–126	4
	c. Hot milk and water added, beaten 5 min. (ready to serve)	23.8	21.7	.295	.281	2.47	5.28	31.6 ± 5.99 19–46	104.2 ± 1.88 101–109	124.3 ± 4.13 116–133	105.7 ± 6.53 86–115	105.8 ± 3.45 95–112	4
	d. Held in warmer at 60°C. 1½ hr.	24.3	13.0	.303	.284	2.62	5.53	13.2 ± 6.04 6–31	108.7 ± 2.42 103–111	123.5 ± 6.94 109–142	108.7 ± 3.54 99–115	106.8 ± 4.22 97–116	4
4	Dehydrated	96.3	70.1	.308	.122	3.16	6.77						
	a. Rehydrated in water at 20°C. ½ hr.	25.1	60.3	.283	.111	2.91	6.25	94.4 94–94	98.8 95–102	95.0 84–106	100.9 101–101	101.2 99–103	2
	b. Baked at 177°C. ½ hr. (ready to to serve)	24.3	28.1	.257	.174	2.70	6.21	49.2 ± 1.99 47–53	95.2 ± 1.85 94–96	84.6 ± 3.74 78–89	102.0 ± 6.90 92–115	115.5 ± 3.85 104–116	3
	c. Held in warmer at 60°C. 1½ hr.	25.8	24.4	.213	.203	2.81	6.18	42.7 ± 7.08 35–57	79.0 ± 5.28 69–84	98.6 ± 5.01 90–107	107.5 ± 2.62 106–113	110.4 ± .05 110–111	3

* Vitamin content reported on the dry basis.

** The percentage retentions were calculated on the moist basis, using the weights of the dehydrated, rehydrated, beaten, and held potatoes in each cooking lot, and the weight of the added water and milk. The statistical treatment was made only on the figures of most importance; that is, on the percentage vitamin retention of the vegetable when ready to be served, and on the held vegetable. Significant differences in retentions were noted between:

Ascorbic Acid	*Thiamin*	*Riboflavin*	*Niacin†*	*Niacin††*
1c and 2d, 3d, 1d, 1e	1e and 4c	3c and 1c, 1d, 2c, 2d, 4b	2d and 2c	none
1d and 2c, 4b	3d and 4b, 4c	3d and 4c		
1e and 2c, 4b, 1d, 2d, 4c				
2c and 3d				
2d and 3c, 4b, 4c, 2c				
3d and 4b				
1b and 2b, 3b				
2b and 3b				

† Niacin extracted with water.

†† Niacin extracted by alkaline hydrolysis.

‡ The number of replications reported apply to all of the ascorbic acid, thiamin, and riboflavin determinations, and all of the niacin determinations except those in Method 1, where one analysis was made, and in holding in method 4 where 2 replications were made.

of a 100-gm. serving of the hashed baked potatoes was 6.84 mg. ascorbic acid, .0627 mg. thiamin, .0424 mg. riboflavin, and 1.51 mg. niacin.

The ascorbic acid content at the serving stage was highest in the mashed potatoes prepared by Method 2 and lowest in those prepared by Method 3. Those mashed by Method 1 and the hash-brown potatoes were intermediate in ascorbic acid content. The apparent explanation for the best retention of ascorbic acid resulting from Method 2 was the short beating time. There was no apparent destruction of thiamin, riboflavin, or niacin during any of the methods of preparation.

Potatoes prepared by Methods 2, 3, and 4 were scored about the same in palatability; those prepared by Method 1, much lower. The judges considered the potatoes prepared in quantity acceptable, with the exception of those prepared by Method 1 which were compact, sticky, waxy in texture, and darkened from long contact with the mixing bowl. The improvement in the texture of potatoes prepared by the other methods was probably influenced by beating the potatoes while at a higher temperature and for a shorter beating time. All the mashed potatoes were somewhat waxy and lacking in fluffiness when compared with high quality, mashed fresh potatoes. Even the best of the mashed potatoes contained a few small lumps. The judges preferred the potatoes with the more fluffy, even though slightly lumpy, texture.

Because it was thought that all of the potatoes prepared in the quantity studies would have rated higher in flavor if margarine and fresh milk had been used, the same judges scored potatoes which had been prepared in small quantity using fresh milk, fresh milk and margarine, evaporated milk, and evaporated milk and margarine. The potatoes containing fresh milk received an average score of 1 point higher in palatability than did those containing evaporated milk; those containing margarine and either fresh or evaporated milk, an average score 1 point higher than those served without margarine. Thus, potatoes containing fresh milk and margarine were scored 2 points higher than those containing evaporated milk and no margarine. The potatoes prepared in small quantity with added potato starch were whiter in color but the texture was not greatly improved.

SUMMARY

Dehydrated potatoes contained an average of 76.5 mg. ascorbic acid, .323 mg. thiamin, .148 mg. riboflavin, and 6.15 mg. niacin per 100 gm. on the dry basis.

Potatoes rehydrated one half hour in cold water retained more ascorbic acid than did those rehydrated in boiling water and kept hot by a gas flame 10 min., soaked at room temperature 15 min., or kept warm in a preheated steamer 30 min. During rehydration, no appreciable loss of thiamin, riboflavin, or niacin was observed.

Potatoes beaten for the shortest time, either in the mechanical mixer or with a wooden paddle, retained significantly more ascorbic acid. Thiamin, riboflavin, and niacin retentions were not changed appreciably. Mashing the potatoes resulted in a slight decrease in retention of ascorbic acid, but no appreciable change in the retention of the other vitamins. When compared with beaten potatoes, however, mashed potatoes were lower in ascorbic acid, slightly lower in thiamin and niacin and considerably higher in riboflavin (probably due to the added milk).

During baking, hash-brown potatoes lost almost half of their ascorbic acid. Thiamin, riboflavin, and niacin retentions did not vary appreciably.

During holding in a bain-marie or warming oven, ascorbic acid in mashed potatoes decreased rapidly. No significant loss of ascorbic acid in hash-brown potatoes occurred during holding undisturbed in the warming oven 1½ hr., nor were thiamin, riboflavin, and niacin retentions significantly changed in either mashed or hash-brown potatoes, except with regard to thiamin in hash-brown potatoes.

Hash-brown potatoes and mashed potatoes beaten 5 min. in the mechanical mixer or with a wooden paddle scored about 10 out of a possible 15 in palatability. Mashed potatoes beaten 20 min. scored 6.7.

TABLE 2

*Vitamin content and palatability score of 100-gm. serving of dehydrated shredded potatoes after preparation and holding**

COOKING METHOD AND TREATMENT	ASCORBIC ACID	THIAMIN	RIBOFLAVIN	NIACIN**	NIACIN†	PALATABILITY SCORE††
	mg./100 gm.	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	*mg./100 gm.*	
1. Mashed	6.71	.0677	.0589	—	1.07	6.7
Held 1½ hr.	2.03	.0692	.0634	—	1.32	
Held 3 hr.	.496	.0721	.0667	—	1.41	
2. Mashed	6.85	.0673	.0738	.549	1.28	9.2
Held 1½ hr.	1.40	.0676	.0753	.497	1.16	
3. Mashed	5.01	.0683	.0675	.597	1.31	10.0
Held 1½ hr.	2.10	.0720	.0676	.622	1.34	
4. Mashed	6.84	.0627	.0424	.658	1.51	10.0
Held 1½ hr.	6.26	.0550	.0524	.724	1.58	

* Reported on the moist basis.
** Niacin extracted with water.
† Niacin extracted by alkaline hydrolysis.
†† The possible score was 15 (5 each for appearance, texture, flavor).

PRACTICAL APPLICATIONS

The following recommendations for preparation of dehydrated shredded potatoes are based upon optimum ascorbic acid retention and palatability; thiamin, riboflavin, and niacin retention were not appreciably affected by any of the methods of preparation or holding except for thiamin in the held hash-brown potatoes.

1. Rehydrate potatoes completely at a high temperature; this shortens beating time, thereby reducing loss of ascorbic acid.
2. Beat for 5 min. only, with a mechanical mixer; longer beating increases loss of ascorbic acid and yields a waxy compact product.
3. Keep potatoes hot during mashing to obtain a fluffy product.
4. Do not mash potatoes until just before serving, even though this means extending the rehydration period; this prevents increased losses of ascorbic acid.
5. Serve potatoes immediately after mashing; ascorbic acid loss from mashed potatoes is very rapid during holding, probably because of entrapped air.
6. If time for last-minute preparation is limited, prepare baked, hash-brown instead of mashed potatoes.
7. If potatoes must be held before serving, prepare as baked, hash-brown potatoes.

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ADAPTATION OF SHORT METHOD OF CALCULATING THE NUTRITIVE CONTENT OF DIETS IN RURAL AREAS OF MIDDLE TENNESSEE[1]

RUTH C. STEINKAMP, WILLIAM D. ROBINSON, M.D., AND MARGARET M. KASER

From the Departments of Medicine and Biochemistry, Vanderbilt University School of Medicine, and the Tennessee State Department of Public Health, Nashville

CALCULATION of the dietary intake of nutritional essentials from food consumption records at best is a tedious task and especially time-consuming when records are obtained from a large number of subjects in nutrition surveys of populations. Yet anyone who undertakes this is soon aware of the fact that a large percentage of the total intake of nearly all the dietary constituents is determined by a few foods or groups of closely related foodstuffs. Using the principle of grouping foods according to the distinctive contribution which they make to the total intake of the various nutritional essentials, Donelson and Leichsenring (1) devised a short method for dietary analysis which simplifies calculations and eliminates the necessity of calculating the content of each individual foodstuff.

It is evident that the relative contributions made by individual foods and groups will vary considerably with dietary patterns. We have accordingly adapted the short method devised by the Minnesota workers in accordance with the food habits of a rural population of Middle Tennessee. The selection of food groups and the weighting of values for each group were determined by the use of 130 individual food consumption records from this population. The validity of the short method has been tested by comparing the values obtained by it with the usual method of calculation and results of actual analyses. In all cases, the diet records used constituted a representative sample of more than a thousand such records obtained in surveys of populations in rural areas of Middle Tennessee (2).

DERIVATION OF THE SHORT TABLE VALUES

The basis for the estimation of calories, carbohydrate, protein, fat, calcium, phosphorus, iron and vitamin A, thiamin, riboflavin, niacin, ascorbic acid and vitamin D, was the revised edition of the National Research Council's table of food composition (3); for estimation of the nutrient content of pies and cakes, Bradley's tables (4).

Food groupings were determined by considering the similarities and differences between foods as well as the amounts of certain foods commonly noted in typical diet records. Differences in the composition of fruits and vegetables, especially with respect to their vitamin content, necessitated several groupings. Fruits were divided into 4 classes: citrus and strawberries; dried; fresh and canned; and yellow—both fresh and dried. Similarly, 6 groups of vegetables were classified as: green and yellow; green leafy; legumes; Irish potatoes; tomatoes; and "other vegetables" including head lettuce. The separation of the first two groups is dependent primarily on whether the vegetable is a fair or very rich source of carotene. A separate group for legumes was necessary because they are eaten in large quantities and make a significant contribution to the total intake of the B vitamins and iron. Similarly, due to the high concentration of vitamin C found in tomatoes, this vegetable was placed in a separate group.

As recommended by Donelson and Leichsenring, food combinations such as stews, soups, meat loaf, macaroni and cheese, etc., were classified in the proper amounts in all of the groups represented by the various foods in the mixtures. An allowance was made in the calculations for the widespread custom of boiling all vegetables with generous amounts of fat meat or lard.

The food groups in Table 1 reflect the type of diet most often recorded in the area studied. Separate groupings for biscuits, corn bread, legumes, pork, and molasses were necessary because these foods are frequently consumed in large amounts. While in some regions of the United States spinach is the green leafy vegetable most often noted in diet records, in the southern rural areas it is used to a very limited extent. Turnip greens, on the other hand, comprise for the most part the only vegetable of this type in the diet patterns of the rural area studied; hence the nutrient values for the green leafy vegetable group are more consistent with the values for turnip greens than with those for spinach. The successful use elsewhere of the short table herein presented will depend upon the similarity of the dietary pattern to that of the section described.

The nutrient values for the food groups in Table 1 were computed for the standard-size servings of Bowes and Church (5). These values were weighted so as to take account of the frequency of occurrence of the individual foods in the 130 daily diet records. The process is illustrated in Table 2 for the caloric value of the whole grain and enriched cereal group. The weights used are numbers proportional to the frequency of occurrence, obtained from the average number of grams of food eaten per daily diet record (Column 1, Table 2). These relative frequencies were multiplied by the number of calories per standard-size serving and the results averaged for the entire food group.

By substituting other nutrient values per serving, *e.g.*, protein, carbohydrate, etc., for calories, the various group mean values for these essential nutrients were calculated.

USE OF THE SHORT TABLE

For convenience, the values in Table 1 were calculated in terms of standard-size servings, as, for example, in the following sample menu for one day:

Breakfast		Dinner	
Oatmeal	¾ c.	Turnip greens, fat	½ c.
Egg, fried	1	Cole slaw, mayonnaise	½ c.
Enriched bread	2 sl.	Corn bread	1 sl., 4x2x1 in.
Sweet (whole) milk	1 c.	Buttermilk	1 c.
Butter	2 tbsp.		
Sugar	2 tsp.		

Supper	
Stewed potatoes with fat	½ c.
Dried beans with fat	1 c.
Corn bread	1 sl., 4x2x1 in.
Sweet (whole) milk	1 c.

By multiplying the appropriate values in Table 1 by the number of servings and totaling the columns, the nutrient content of the day's diet is obtained. If the average intake over a longer period is desired, the total values for that period may be divided by the number of the days during which the record was kept.

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TABLE 1

Weighted nutrient values for food groups for rural Middle Tennessee diets

FOOD	APPROXIMATE MEASURE	CALORIES	CARBOHYDRATE	FAT	PROTEIN		MINERALS			VITAMINS					
					Animal	Vegetable	Calcium	Phosphorus	Iron	A	Thiamin	Niacin	Riboflavin	Ascorbic Acid	D
			gm.	*gm.*	*gm.*	*gm.*	*mg.*	*mg.*	*mg.*	*I.U.*	*mcg.*	*mg.*	*mcg.*	*mg.*	*I.U.*
Buttermilk biscuits: plain flour	(2) 1 in. in diam. and ½ in. thick	90	14.4	2.6	0.5	2.0	18	32	0.2		12	0.1	20		
enriched flour	1½ in. in diam. and 1 in. thick	90	14.4	2.6	0.5	2.0	25	32	0.3		45	0.5	70		
Water biscuits: plain flour	(2) 1 in. in diam. and ½ in. thick	85	13.5	3.1		1.4	8	18	0.1		6	0.1	5		
enriched flour	1½ in. in diam. and 1 in. thick	85	13.5	3.1		1.4	8	18	0.3		35	0.5	45		
Butter	1 tbsp.	110		12.2	0.1		2	2	0.03	480		0.02	2		15
Cereals: whole grain and enriched	⅓ sl. w. w. bread, 1 c. prepared cereal, ⅔ c. cooked cereal, 2 graham crackers	90	16.2	1.5		3.0	15	65	0.9		110	0.5	54		
refined	1 c. prepared cereal, ⅔ c. cooked cereal, 1½ sl. white or light rye bread, 4 soda crackers	90	17.2	1.5		2.0	10	28	0.3		40	0.4	25		
Cheese: Cheddar	1 cu. in.	118	0.5	9.7	7.1		260	185	0.3	510	9	0.04	160		
cream	1 tbsp.	110	0.5	11.0	2.1		108	78	0.1	660	5		30		
cottage	1 rounded tbsp.	30	1.6	0.3	5.8		25	80	0.06	30	3		40		
Cocoa and malted milk	6-oz. glass	220	24.5	10.0	7.6		215	190	0.4	480	65	0.1	385	2*	3
Cookies and cakes	2-cu.-in. piece of cake, 2 medium cookies, 1 large cookie	150	25.5	4.0	1.1	2.0	25	50	0.5	150	10		25		
Corn bread: water	4-cu.-in. slice	82	11.5	3.5		1.1	2	20	0.1		25	0.2	10		
milk	4-cu.-in. slice	92	12.8	3.6	1.0	1.1	30	48	0.2		35	0.3	50		
Cream and ice cream	6 tbsp. 18% cream, 4 tbsp. 40% cream, ½ c. ice cream; for ice cream add 1 serving sugar	165	4.6	14.3	3.6		80	60	0.2	510	30	0.1	230		
Custard	½ c.	175	21.0	7.0	7.0		155	167	1.0	400	82	0.1	330		25
Custard pie	⅙ of 9-in. pie	310	37.0	15.0	7.0		155	167	1.0	400	82	0.1	330		25
Eggs	1 med.	80	0.3	5.8	6.4		27	105	1.3	500	70	0.04	190		45
Fats: lard	2 tsp. fat	90		10.0											
bacon, salt pork, gravy	1 strip of bacon, ½-in. cube salt pork, 2 tbsp. gravy, 2 tsp. mayonnaise	75		8.0	0.9		1**	13	0.1		6	0.1	18**		
Fish	½ c. salmon, tuna or one 2-in. cake + ½ serving fat	100		5.7	12.2		40	172	0.6	170	13	4.7	100		53
fried	2 oz.	125	3.9	6.9	11.7		13	134	0.7		55	4.0	50		
steamed	2 oz.	75		2.9	11.7		13	134	0.7		55	4.0	50		
Fruits: citrus and strawberries	1 med. orange, ½ grapefruit, ½ c. strawberries, ½ c. juice	45	10.5	0.2		0.5	22	18	0.4	50	140	0.2	20	36	
dried	1 oz., ½ c. raisins, 1 whole peach, 3 halves apricots, 4 prunes	90	21.4	0.2		0.6	15	24	0.8	470	24	0.4	30		
fresh and canned	½ c., or 1 medium fruit	75	18.0	0.3		0.5	6	15	0.4	165	30	0.2	40	6	
yellow	½ cantaloupe, 2 medium apricots, ½ c. or 1 medium peach	45	10.5	0.2		0.6	15	20	0.4	1,700	30	0.6	50	15	
Legumes	½ c. cooked	105	18.5	0.4		6.5	30	120	2.6		170	0.4	60	6†	
Liver	2 oz.	125	3.5	7.0	12.0		7	220	4.9	15,000	190††	9.5††	1900	5	
Meat: beef, fowl, lamb, or veal	3 oz.	210		15.5	17.0		13	180	2.5		70	4.8	160		
pork, medium fat	3 oz.	340		30.7	17.0		20	175	2.5		1000	4.0	222		
sausage, pork	1 oz. or one 1-in. cake	133		13.4	3.2		1	8	0.03		60	1.5	40		
luncheon	1 frankfurter, or ½ oz. luncheon or sausage roll	75		6.4	4.7		3	50	0.7	45	70	0.8	100		
Molasses	1 tbsp.	50	12.5				55	6	1.9		10	0.02	40		
Milk: whole and evaporated	8 oz. whole, or 4 oz. evaporated	165	11.8	9.6	8.4		285	220	0.5	350	95	0.2	490	2*	3
skim and buttermilk	8 oz. skim or buttermilk	90	11.0	1.0	8.4		250	230	0.5	50	95	0.2	430	2*	
Nuts	1 tbsp. peanut butter, or ½ oz. peanuts or other nuts	95	3.0	7.6		3.6	10	60	0.3	45	40	2.0	25		
Pies	⅙ of 9-in. pie	300	45.0	12.0	0.5	3.5	90	53	0.6	150	20	0.04	80		
Potatoes, Irish	½ c. or 1 medium	85	19.0	0.25		2.0	8	50	0.8	40	12	1.2	40	4	
Sugars, syrups, candy, soft drinks	1 tbsp. sugar, syrup, jelly, jam, 6-oz. bottle soft drink, ¼ candy bar	60	15.0												
Tomatoes	1 medium, ½ c. cooked, ½ c. juice	20	4.0	0.2		1.0	7	20	0.6	950	50	0.7	30	20	
Vegetables: green leafy	½ c. cooked turnip greens, spinach, etc.; 1 c. raw greens	35	5.5	0.4		3.0	260‡	50	2.3	10,000	145	0.5	500	55	
other green and yellow	½ c. cooked green beans, carrots, peas, sweet potatoes, or yellow squash	35	6.8	0.2		1.3	40	40	1.0	1,500	45	0.4	50	3	
other	½ c. cooked beets, turnips, summer squash, corn, onions, cabbage; ⅛ head lettuce, 2 stalks celery, 5 small green onions, 6 to 8 radishes, ¾ c. raw cabbage	50	9.8	0.5		1.9	20	50	0.4	100	60	0.7	60	6	

* None in evaporated or pasteurized.

** For milk gravy, the figure for calcium is 20 mg.; for riboflavin 35 mcg.

† Fresh only.

†† For pork liver, the figure for thiamin is 675 mcg.; for niacin 11.5 mg.

‡ None for spinach.

ACCURACY OF THE SHORT TABLE

To test the accuracy of the short method, three series of diets were calculated by the short and the long method. The nutrient values were calculated by the long method for each food noted in the diet record, according to the food

TABLE 2

Derivation of the weighted caloric value for the whole grain and enriched cereal group

FOODSTUFF	RELATIVE FREQUENCY OF OCCURRENCE IN 130 DAILY RECORDS	CALORIES PER SERVING*	CALORIES PER SERVING WEIGHTED FOR FREQUENCY
Bread, Whole Wheat	0.7	79.0	55
Bread, Enriched	48.4	66.8	3230
Bran and Wheat Flakes	2.5	107.8	269
Crackers, Graham	2.3	89.8	206
Oatmeal	38.8	120.3	4667
Shredded Wheat	0.2	93.0	19
Total	92.9		8446
Average			90**

* Based on National Research Council data (3).

** Calories per serving of whole grain and enriched cereal group (this is the figure in Table 1).

protein (Table 4). The mean difference for fat is greater than would be expected to occur by chance. Among the minerals, the same relationships noted in the spring diets with respect to phosphorus and iron persist. Calcium as computed by the short method is slightly higher. Vitamin A appears to be underestimated by the short method, but since the mean difference is much greater than the median difference, it is apparent that a few diets with unusually high vitamin A values resulted in an asymmetric curve. Reference to the composition of the individual diets shows that the discrepancy is probably explained by differences in the table values for turnip greens, an item noted 14 times in the 40 diet records. Similarly, skewing of the distribution of the ascorbic acid content of these diets possibly accounts for the apparent tendency of the short table to overestimate this vitamin. Thiamin corresponds well as before. Riboflavin is slightly higher and niacin somewhat lower by the short method.

An opportunity was afforded to compare the calculated vitamin values of these diets with values determined in the laboratory. The two series of 40 diets were duplicated, sampled, and analyzed for vitamin A by the Carr-Price reaction, thiamin by yeast fermentation, riboflavin and niacin by microbiological assays, and ascorbic acid by the reduction of Tillman's dye. A complete presentation of the

TABLE 3

Comparison of calculated values obtained with the short and long dietary tables for 40 spring one-day records

NUTRIENT	MEAN		MEAN DIFFERENCE	S.E. OF MEAN DIFFERENCE	MEDIAN		MEDIAN DIFFERENCE
	Short	Long			Short	Long	
Calories	2375.2	2361.5	+13.7	±22.2	2550	2500	+35.0
Carbohydrate, *gm.*	270.6	270.9	−0.24	±3.5	260.0	268.8	+3.3
Fat, *gm.*	112.5	109.4	+3.1	±1.93	109.4	110.0	+1.4
Total protein, *gm.*	71.9	72.4	−0.5	±1.48	72.5	69.2	+0.9
Calcium, *mg.*	1.000	0.990	+0.010	+0.026	0.708	0.750	+0.011
Phosphorus, *mg.*	1.332	1.407	−0.075	±0.019	1.200	1.222	−0.053
Iron, *mg.*	11.01	12.39	−1.38	±0.26	11.7	12.9	−1.4
Vitamin A, *I.U.*	6895	8417	−1522	±912	4200	3888	−500
Thiamin, *mg.*	1.198	1.259	−0.061	±0.042	1.143	1.321	−0.092
Riboflavin, *mg.*	2.062	2.178	−0.115	±0.092	1.786	1.833	−0.008
Niacin, *mg.*	8.6	11.0	−2.4	+0.7	7.7	9.0	−2.0
Ascorbic acid, *mg.*	34.2	46.4	−12.3	+5.5	22.5	33.8	−14.2

table compiled by the Tennessee State Public Health Department (6). The series were calculations of the following: 40 spring diets for one day; 40 fall diets for one day; and 30 seven-day diet records. In addition, the 40 spring and 40 fall diets were duplicated for laboratory determinations of the various vitamins, and comparisons were made of the short calculations, the long method calculations and the laboratory values.

The results for the two calculation methods for the 40 spring and 40 fall diet records are presented in Tables 3 and 4. The two methods are considered to be in good agreement on the average when their mean difference is less than twice its standard error. (The probability of a difference greater than this occurring as a matter of chance if, in fact, no difference exists, is less than 5 per cent.) On this basis, for the spring diets the two methods are in good agreement with respect to calories, carbohydrate, fat, protein, calcium, vitamin A, thiamin, and riboflavin. The short method gives a slightly lower value for phosphorus, iron, niacin, and ascorbic acid. The magnitudes of these differences are such that it is unlikely they are the results of chance variation. Possibly, better agreement would have been obtained had the same standard references been used in compiling both the long and short tables.

For the 40 fall diet records for one day similar results were obtained with respect to calories, carbohydrate, and

laboratory methods and results obtained will appear elsewhere.

Table 5 presents a comparison of the short and long calculation methods with the laboratory values. The mean laboratory values for vitamin A appear to differ significantly from the values calculated by the long table in the spring and in the fall diets. However, comparison of the median and mean values indicates that the mean is unduly affected by a few large differences at the high levels of the asymmetrical distribution so that interpretation in terms of probability is difficult. With respect to thiamin, the determined values were consistently higher than those computed by either method in the spring series; for the fall diets, the values obtained by both long and short calculations agreed well with those of the laboratory. Due to technical difficulties, the laboratory values for riboflavin content of the spring diets were in error and cannot be evaluated. In the fall series, the laboratory values for this vitamin consistently exceeded those calculated by either method. Niacin values calculated from the short tables agreed better with the laboratory values in both seasons than did those obtained with the long method. For ascorbic acid, the short table values and those obtained in the laboratory were in better agreement for the spring diets than for the fall series. The reverse was true with the long method. However, the remark regarding skew-

ness of the distribution made above holds here also. More detailed analysis of the variations observed when actual determinations are compared with table values will be found in the complete report. Table 5 suffices to indicate that the short table values are in as good or better agreement with the determined values than those obtained by the long method.

Although the short table gives a higher average value for protein, which is probably statistically significant, a difference of this magnitude is unlikely to affect the interpretation of dietary adequacy. The observed difference between the niacin values is probably accounted for by the use of more recent data on niacin content of foods in the compilation of the short table. It should be noted that the

TABLE 4

Comparison of calculated values obtained with the short and long dietary tables for 40 fall one-day records

NUTRIENT	MEAN		MEAN DIFFERENCE	S.E. OF MEAN DIFFERENCE	MEDIAN		MEDIAN DIFFERENCE
	Short	Long			Short	Long	
Calories	2033	2013	+20	±25.6	1888	1900	+30.0
Carbohydrate, *gm.*	264.5	272.6	−8.1	±5.0	256.3	272.2	−5.0
Fat, *gm.*	83.7	74.0	+9.7	±1.7	79.2	71.9	+7.5
Total protein, *gm.*	58.4	58.2	+0.23	+1.6	59.4	58.8	+1.03
Calcium, *mg.*	0.917	0.890	+0.027	±0.012	0.781	0.750	+0.030
Phosphorus, *mg.*	1.095	1.177	−0.082	±0.024	1.075	1.136	−0.068
Iron, *mg.*	9.7	11.8	−2.1	±0.3	10.0	11.8	−2.0
Vitamin A, *I.U.*	9320	14613	−5293	+1561	4666	4333	−625
Thiamin, *mg.*	0.915	0.923	−0.009	±0.032	0.875	0.854	+0.005
Riboflavin, *mg.*	1.792	1.587	+0.205	±0.068	1.429	1.393	+0.400
Niacin, *mg.*	7.2	8.8	−1.6	±0.4	6.0	7.2	−1.2
Ascorbic acid, *mg.*	64	47	+17.6	±8.2	31	33	−0.6

TABLE 5

Comparison of the calculated and determined values for 40 spring and 40 fall one-day diets

VITAMINS	SHORT TABLE MINUS LABORATORY VALUES						LONG TABLE MINUS LABORATORY VALUES					
	Mean difference		S.E. of mean difference		Median difference		Mean difference		S.E. of mean difference		Median difference	
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
Vitamin A, *I.U.*	−2506	+228	±1353	±947	+167	−46	−1545	+5521	±402	±2150	+700	+277
Thiamin, *mg.*	−1.003	−0.024	±0.123	±0.091	−1.100	+0.030	−0.942	−0.016	±0.138	±0.106	−0.830	+0.040
Riboflavin, *mg.*	*	−0.517	*	±0.170	*	−0.380	*	−0.722	*	±0.148	*	−0.660
Niacin, *mg.*	+1.1	−0.48	±0.5	±0.44	+0.25	−0.08	+3.5	+1.1	±0.9	±0.48	+3.7	+0.8
Ascorbic acid, *mg.*	+6.9	+28.3	±5.0	±10.2	+1.9	−3.3	+19.1	+10.7	±4.8	±6.0	+14.0	+5.9

* Technical difficulties in the laboratory prevented evaluation.

TABLE 6

Comparison of calculated values obtained with the short and long dietary tables for 30 one-week records

NUTRIENT	MEAN		MEAN DIFFERENCE	S.E. OF MEAN DIFFERENCE	MEDIAN		MEDIAN DIFFERENCE
	Short	Long			Short	Long	
Calories	2262	2272	−9.5	±13.7	2278	2111	−20.0
Carbohydrate, *gm.*	274.4	276.7	−2.3	±3.58	275.0	275.0	−0.83
Fat, *gm.*	98.2	99.1	−0.9	±1.02	91.7	90.7	−1.25
Total protein, *gm.*	71.9	70.0	+1.9	±0.80	71.3	70.0	+2.0
Calcium, *mg.*	0.952	0.963	−0.011	±0.016	0.907	0.917	−0.005
Phosphorus, *mg.*	1.351	1.331	+0.020	±0.014	1.400	1.300	+0.017
Iron, *mg.*	12.51	12.75	−0.24	±0.22	12.1	12.3	−0.14
Vitamin A, *I. U.*	4575	5048	−473	±411	3900	3833	−591
Thiamin, *mg.*	1.498	1.530	−0.032	±0.033	1.366	1.420	−0.010
Riboflavin, *mg.*	2.032	2.005	+0.027	±0.053	1.900	1.860	+0.033
Niacin, *mg.*	9.4	10.7	−1.3	±0.44	8.5	9.8	−0.75
Ascorbic acid, *mg.*	39.1	44.2	−5.1	±3.83	39.0	41.7	−5.00

It has repeatedly been demonstrated that the magnitude of the errors introduced in dietary calculations is progressively decreased with an increase in the number of days the food consumption records are kept (7). For this reason, a comparison of values obtained from 7-day records of 30 cases by the long and short methods of calculation is presented in Table 6. The mean differences are lower than those obtained with the 1-day records and are well within the limits of chance, except for niacin and protein. discrepancies between the calculated values for vitamins and minerals, especially for iron and phosphorus, which were apparent in the 1-day records, have been minimized and are no longer significant.

DISCUSSION

The chief reason for calculating the nutrient content of diets by a short method is the saving of effort and time. The data in the present communication indicate that as

close an estimation can be obtained as with the usual long method of calculation. The short method herein described has been used in computing nutrient values of 7-day diet records obtained in a recent survey of the nutritional state of over 300 individuals with an estimated saving of nearly one half the time required by the long method. An additional saving is afforded in that, once the food consumption record is classified by groups and servings on a calculation form, the actual computations can be completed by clerical assistants. In this way the services of the nutritionist responsible for the dietary aspects of a survey can be more effectively utilized.

Although this table may be employed in other regions with much the same dietary pattern, its use should be preceded by a study of the existing food habits which may affect the groupings used and the weighting of values for individual foods within a group. Should modifications be indicated, or even where food habits differ significantly, the use of the methods by which this table was devised may be helpful in working out a short method applicable to the region under consideration.

SUMMARY

The validity of a short method for calculating the nutrient content of diets has been tested and adapted to the observed food habits of a rural population of Middle Tennessee. The procedure used consists of grouping foods according to the distinctive contribution which they make to the total intake of the various nutritional essentials, and weighting the mean values for each food in each group according to the average proportion of that food in total average consumption of the group. The method by which mean nutrient values were derived and the complete table are presented with an example of its use.

The values obtained by the short method are compared with those obtained by the usual long method of dietary calculation for 80 one-day diet records and for 30 seven-day records. A comparison is also made of the calculated vitamin values and the values determined in the laboratory on duplicated diets for the 80 one-day records. Consideration is given to seasonal variation.

It is concluded that the short method permits considerable conservation of time without loss of accuracy in dietary calculations. The errors introduced by use of a one-day computation are minimized by the use of a seven-day record of food consumption.

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The Protein Element in the Diet

Concerning the protein element in the diet it seems apparent from experimental studies that the best diets will supply very liberal amounts of the essential amino acids and also such others as may be found to be useful to the body for the synthesis of any biologically active principles derived from this class of nutrients. Hence, the nutritionist of the future is almost certain to advise a relatively high protein diet. A statement now is not warranted concerning the percentage of the total calories which should be derived from protein. This will depend upon the biological value of the protein moiety. If this is high, a lower protein percentage should afford the same nutritional values as a higher intake of proteins of lower biological value. There seems to be no doubt that a high protein diet enables an individual to synthesize antibodies to a greater extent than is possible when the protein intake falls below the optimum. Surveys and clinical studies clearly show that deficiency of protein is extremely common in diets of American people at the present time.—*From Our National Diet and Future Health, by E. V. McCollum, in Implications of Nutrition and Public Health in the Postwar Period—proceedings of a conference in Detroit, November 3, 1944, under the sonsorship of the Research Laboratory, Children's Fund of Michigan.*

Riboflavin Nutrition in Man

The earliest description of the symptoms of riboflavin deficiency in man, as distinct from those of pellagra or of other manifestations of deficiency of the vitamin B complex, was given by Sebrell and Butler in 1938. The condition was termed cheilosis, and was usually accompanied by abnormal redness of the lips at the line of closure, and a fine scaly, slightly greasy desquamation in the nasolabial folds, on the *ala nasi*, in the vestibule of the nose and on the ears. All these symptoms were cured by the administration of 1 or 2 mg. synthetic riboflavin administered daily for 3 to 10 days and then 0.025 mg. per kilogram bodyweight daily until the cure was complete. The cure was also reported of typical lesions of mouth, nose and eyes occurring spontaneously in 3 cases in Georgia in 1939 by administration of 5 mg. riboflavin daily for 3 to 7 days by Oden and Sebrell and his associates, who stated that many such cases existed, and that deficiency of riboflavin was probably common in the southern United States.

These and other clinical and experimental studies have shown that deficiency of riboflavin produces well defined cutaneous lesions of the mouth, nose and ears. The true relation of these signs to deficiency of riboflavin has been demonstrated by the curative effects of pure riboflavin. It has been suggested that vascularisation of the cornea is an early and specific sign of riboflavin deficiency, but more recent investigations indicate that this symptom must be considered in relation to many other factors, and that corneal vascularity is probably not a specific criterion of riboflavin deficiency. Investigations of riboflavin metabolism in man have been limited almost entirely to studies of the urinary excretion of the substance under various conditions. Very few observations are recorded on the riboflavin content of blood or tissues, and no great differences are apparent in material from well or poorly nourished subjects.

Some useful studies of man's requirement for riboflavin have been made, and from available evidence it would seem that 0.5 mg. per 1000 calories, or 0.025 mg. per kilogram bodyweight, or 1.5 to 2.0 mg. daily would maintain health in a normal adult. A survey of the riboflavin content of the average diet in the United Kingdom, in November 1944, indicates that an adult receives at least 1.15 mg., a child under 5 having its full milk ration, 1.95 mg., and an older child, 1.55 mg.—*Excerpts from Some Aspects of Riboflavin Nutrition in Man, by A. M. Copping, in Nutrition Abstr. & Rev., January 1945. Reprints are available at 1 shilling on application to the Secretary, Nutrition Abstracts and Reviews, Rowett Institute, Bucksburn, Aberdeen, Scotland.*

WINNING A PLACE IN THE SUN

MARGARET E. TERRELL[1]

Director, Residence and Dining Halls, University of Washington, Seattle

DIETITIANS are at an important threshold in their history—that of receiving adequate recognition for their services. Recognition is important to their profession as to any, in developing respect, winning opportunities for service, and securing remuneration in proportion to the services they render.

For a young profession, not yet fully developed nor clearly understood, dietetics has made excellent progress. But it deserves and requires more general approval and support if its greatest advancement is to be realized. Unfortunately, a good many people appear to believe that dietitians are bent on taking all the fun out of eating, and should only be called upon when the patient is too sick to help himself. The more timid have made little effort to refute this misconception; others, with keener knowledge of human nature, have viewed such situations as excellent opportunities for enlightening those who are ill-informed concerning the real nature of the dietitian's work.

It is true that a few dietitians whose training has been somewhat narrowly restricted have given an erroneous impression of the scope of the dietitian's work. For instance, those who repeatedly serve food that is carefully calculated as to nutritional adequacy but inferior in gustatory appeal give a severe jolt to the standing of all dietitians. At times all the bad scores ever earned by such as these, in poor organization, weak financial management, and unsuccessful personnel relations, seem to stack up against the profession as a whole. This has made some members wonder if it might be well to exchange the term *dietitian* for another against which people had not thus become conditioned. But, unhappily, any other designation one might choose would in turn be subject to misinterpretation.

The title *dietitian* should be made to connote, and in the majority of instances does mean, a skilful food manager, sufficiently informed in the requisite sciences to have a comprehensive knowledge of human nutrition. To tamper with the title now would be confusing and a serious mistake. Excellent work has been done, and the dietitian's influence is being felt as she quietly and steadily pushes her way into the sun. Public interest in nutrition is growing and many people listen good-naturedly as they are urged to eat well-balanced meals. Fruits and vegetables are more popular, liver is no longer viewed with distaste, cooking temperatures are reduced in cooking, and there is greater awareness of the possibilities of food alternates.

Dietitians are helping to make America one of the best fed nations of the world. The Government, aware of the services they perform, has publicized good nutrition and developed during the war years such slogans as "Food for Health," "Eat the Basic Seven," and "Food Fights for Freedom." The assistance of dietitians is being sought in rebuilding a war-torn world and in "winning the peace." The proper feeding of American school children is discussed in legislative circles. Food industries are aware of the significance of their products in the American diet, and they contribute generously to promote research for the benefit of all. Restaurateurs, not all of whom are as yet fully convinced on the score of the dietitian's facility in practical management, are nevertheless fully cognizant of her knowledge of the nutritional aspects of food.

The calculation of nutritional reqirements is only a fraction of the job. Food must be appealing to be eaten, which demands skilful preparation, adequate equipment, and sufficient funds. The writing of good menus should be regarded as an important directive factor in food management. The food combinations should look interesting when served and should taste well together. The cost should be in keeping with the budget and the amount of labor required should not throw the kitchen into a furor or make workers feel frustrated for lack of equipment. Tiresome repetition from day to day or within a menu should be avoided. Every meal should include an item that will serve as a pleasing surprise.

The foregoing statements are trite, no doubt, to the average dietitian. Instructors in food classes in high school and college have drilled the future dietitian on such points as balance in nutritive requirements, pleasing variety in texture, form, and richness, and agreeable harmony in flavor and color. But sometimes these points are blotted out by the urge to pore over tables of food values in order to calculate diets to the second or third decimal point. Thus the importance of nutritional calculation may be overemphasized at the expense of final acceptability of the food. A chart that prods the imagination of the menu-maker and increases her appreciation of the standards of excellence or levels of acceptance would be a valuable companion piece to food requirement tables.

Chefs and dietitians have been known to voice doubtful compliments about each other's food skills. The pat remark, made after watching a chef grind food in a mortar, mold, carve, and garnish it until its original form cannot be detected, that "a French chef knows how to do everything with food but leave it alone" seems warranted. The dietitian, on the other hand, is sometimes accused of being so absorbed with nutritive elements that the food she serves fairly quivers with nakedness and is devoid of imagination or appeal.

Chefs serve as apprentices for several years in an atmosphere in which catering to the tastes of a fastidious clientele is of first importance. They work in institutions that vie with others for the reputation of serving excellent and interesting food. Above all, they must be skilful in preparing food from the purely aesthetic standpoint. In the dietitian's background, on the other hand, the "plain, wholesome food" of the average American home predominates, plus the study in school and college of cookery techniques for representative foods. Rarely does she gain a broad experience in the preparation of food which might be expected to win her renown among gourmets.

The dietitian's preparation for her profession, based as it is on the sciences and arts that ensure results, is sound. Yet there has been a tendency many times to stop too soon. Whereas chefs frequently concentrate too closely on form and decoration, the dietitian tends to stop short of appealing finish.

That point of difference which determines excellence or mediocrity may merely be a shade of quality or an element of surprise that adds or detracts from food enjoyment. Cost, effort, even the skill of the cook may have little bearing on the case. Coffee well brewed from high-grade beans, for instance, when served lukewarm in an ugly or chipped cup will rank below a lower-grade coffee served scalding hot in attractive china. A simple scoop of ice cream making an unrelieved pale mound on a flat white dish is likely to be received with indifference. On the other hand, a ball of peppermint ice cream, one of chocolate, and another of vanilla, each rolled in ordinary cocoa that intriguingly conceals the flavors, and served in an attractive sherbet glass, will place a simple dessert in the party class. The unadorned contours of a slice of gray

[1]Miss Terrell is director of one of the seven administrative training courses for dietitians approved by the American Dietetic Association.

beef, a rigid boiled potato, and a nondescript vegetable come readily to mind. Very different is the same food when served as beef blushing *au jus*, accompanied by a steaming, feathery, chive-buttered potato and a glistening green vegetable.

The menu is the first step in achieving results, but to complete the pattern the menu-maker must have the authority and ability to follow through. She must have the right to reach into the market basket and select the exact item for a particular use. Knowledge of varieties and sensitivity to qualities are essential. When use requires a potato, for example, that will whip into a creamy white cloud, she will not pick a variety that clings tenaciously in soggy lumps. In selecting a baking potato she will turn away from the misshapen spotted low grades to find a plump, smooth, netted gem that can be turned into a dry mealy mass of inviting goodness. The French fried and the salad potato will be waxy enough to hold their shape, yet tender enough to please the palate.

The person who has designed the meal and selected the food should also direct its preparation. All the knowledge which she possesses of the science of cookery and the psychology of personnel management must be brought to bear. The dietitian should be able to perform given tasks herself, if she is to direct others with confidence and in a stimulating, understandable manner. The director who can do the job well herself can best teach others. The worker will sense her confidence and have greater respect for her teaching, knowing that she is not being asked to do that which is impossible. A team-work relationship must exist between employee and employer to ensure consistently good results. The employee who has a cooperative sense of responsibility will strive to maintain standards in his unit when the employer is occupied with some other phase of the work. Very often the manager who cannot get along with her help is one who feels inadequately informed and is afraid that her knowledge will be challenged. This makes her dictatorial and incapable of "talking it over" with her help. She shoots a direction at them and then runs for cover.

Fear may stifle success in management or serve as a prod toward greater accomplishment. Every director whose responsibilities challenge her ability is beset by qualms. If she is to be successful she will face her problems frankly and take steps to solve them. The unskilful in preparing food will gain skill; the timid will become better acquainted with her employees so that she may determine their interests, attitudes, and aptitudes. The fear of financial failure will be met by careful calculation of costs. A feeling of social inadequacy which may cause strained relationships with other staff members and the public may be conquered by a determined effort toward social grace and confidence. It is conceded that the solution of fear is in the "easier to tell than do" category. Its wise solution on the other hand may mean the difference between directing work to successful culmination or remaining a few jumps ahead of failure.

"Following through" implies carrying out original intentions—intentions motivated perhaps by the standards set up by the institution. The institution may employ a dietitian in the hope of having a director with sufficient intelligence, preparation, and experience to comprehend these standards or goals and bring about their realization. In many institutions, intentions or policies regarding the food service are too vague to be applied as a directive force in food management. Some head officials are of the "yes" or "no" type who somewhat automatically approve or reject plans placed before them. Others wish to plot standards and methods in detail and see that they are carried out. A dietitian with good food standards, experience, and vision can serve most usefully in an organization in which she is allowed freedom in planning.

In those instances in which head officials set their own standards and methods in detail, the dietitian must be alert to perceive that which is demanded, convincing in her support of the standards set, and skilful in their interpretation. This requires the fine art of adaptability and a nice sense of balance between personal aims and requested plans and standards. Dietitians now and then have been accused of being arbitrary in making policies. Less ground is gained by such attitudes than by reasonable compromises.

"Eat it, it is good for you," is a bitter sauce for any food. The "Don't eat" list, too, can often be misunderstood. Laymen have grown thoroughly confused about certain foods. To the very conscientious, foods such as hamburgers and candy are pleasant but taboo. The more incredulous ask what is wrong with them. Does wholesome meat change in becoming hamburger? Is sugar contaminated when made into candy?

Many laymen gain some half-baked truths and then draw their own conclusions, which means that the dietitian must guard continually against misconceptions and food fads growing out of the misinterpretation of simple statements of fact. The dietitian has been misquoted and misunderstood at times, and this has been partly due to neglect in following through with clearly stated reasons for the statements she makes. How simple it sounds to the layman when he is told that candy and hamburger are both good foods but must not be used to the exclusion of other essentials in a balanced diet!

Dietitians are among the most serious-minded, hard working individuals to be found in the professional class. As department executives the scope of their work is expressed in responsibilities rather than hours per day or week. The responsibilities in a dietary department are many, indeed, and assistance in meeting them is often inadequate. As a result, the hours tend to be difficult and long and the dietitian lacks the time or is too fatigued to make the best use of her abilities. Restricted authority and low salaries compared with those for other work at the same professional level are monuments to the fact that the dietitian has not always made known her worth.

Rebuffs, natural timidity, fatigue, lack of time, inexperience in business finesse, and an exaggerated sense of duty form the band of a vicious circle that keeps the dietitian from a full realization of her possibilities. Too frequently she clings to her workaday problems to which she constantly refers in social conversation. This serves as a barrier to rest and relaxation and the development of that "pleasant to know" personality which might help her to achieve success in her work. All who have studied the life histories of successful people or who are aware of the means of effective practices in business are cognizant of the need for diplomacy, the value of strategic enlightenment, and the advantages of having workable plans. In the dietetic profession, as elsewhere, diplomacy is an attribute of an interesting and appealing personality. The work of the dietitian should be authentically interpreted to the public so that it may be generally comprehended and accepted at its face value. "Strategic enlightenment" might take the form of supplying employers, patrons, and colleagues with information that will inspire confidence and win their support. A suitable plan for such enlightenment will temper professional preparation and point the way to future usefulness.

The goal of the dietitian as a professional worker deserves critical thought on the part of every member of the American Dietetic Association. What is the yardstick for professional fulfilment? What particular place in the sun is desired? In which direction are the richest rewards —rewards not alone of personal remuneration, but also the furthering of science and its application, the development of an art, the promotion of social betterment?

Editorial

THE DIETITIAN—A SPECIALIST IN FEEDING PEOPLE

For twenty-eight years, or since the American Dietetic Association was first organized, the term *dietitian* has connoted "a specialist in feeding people." At first the dietitian was chiefly concerned with feeding the sick. But ever since Ruth Wheeler, former president of the American Dietetic Association, suggested in the early 1920's that the feeding of the sick should be based on the requirements of the "normal" individual and thus revolutionized previous concepts of diet therapy, that simple phrase—feeding people—has steadily tended to broaden in significance. And as it has broadened to encompass the food needs of human beings in any category, the content of the training courses approved by the American Dietetic Association has kept pace with the newer developments in large group feeding techniques and the advances in the knowledge of human nutrition. Nearly twenty years of experience in organizing and developing this fifth year of training for the dietitian who is to direct the feeding of large groups now serve to strengthen these approved training courses. Today, in the seventy-six of such approved courses, nearly 1000 properly qualified college graduates are trained each year.

The keystone in each dietitian's preparatory training is a thorough knowledge of the science of nutrition. Around this keystone are laid the remaining stones to complete the arch—the techniques of feeding people, the art and science of applied nutrition, dietetics. And as the arch will not stand if but one of its structural parts is weak, so the training of the administrator of large group food services will be fully effective only if no part of her training experience is weak.

It was in the hospital dietary department that the broad and soundly scientific principles of large group food service techniques were first applied and the fundamentals of the science of nutrition, on the basis of *normal* needs, translated into action; today, in the training courses for dietitians approved by the American Dietetic Association, adequately supervised and well-rounded training in the feeding of large groups can be obtained and with no disparagement of the basic nutritional aspects. Every dietitian inescapably acquires the knowledge that it is not so much what goes on the plate as what goes into the stomach that counts—thus the training courses place continued and increased emphasis on what some have termed the more practical aspects—the selection and preparation of foods to meet the demands of varying food habits and tastes. However, as Terrell indicates elsewhere in this JOURNAL, not all are as yet fully convinced of the dietitian's ability to produce actual and edible meals for men at work or quiescent, as well as food patterns on paper, per man per day.

The view that the dietitian's academic background, firmly based as it should be on the sciences, *ipso facto*, tends to encourage an impractical approach and therefore should be scrapped in favor of academic training largely confined to the developing of specific techniques appropriate to sharply defined vocational limits, has its merits—if manual dexterity and ability to perform duties by rote are the desired goal. But the dietitian, like the civil engineer, must be more than a skilled artisan, she must be able to proceed under her own steam and to think and act independently when the unexpected arises. This is the fundamental purpose of training at the professional level. The rather moss-grown idea of the dietitian as a cloistered savant, thinking only in terms of the more profound and devious branches of biochemistry, allergic to range, dishwashing unit, or heavy duty mixing spoon, surely has its amusing aspects just now, especially when one thinks of the thousands of dietitians in civilian hospitals and other large group feeding organizations, who are overcoming a multiplicity of problems due to food and labor shortages, rationing and lack of equipment. Good food is good food, whether the recipient be ambulant or prone—actually the administrative techniques are somewhat less complex in feeding the former than the latter.

FURTHER STEPS IN ESTABLISHING PROFESSIONAL QUALIFICATIONS AND DESIGNATIONS

In a recently published monograph[1] the Canadian Census Classification, Professional Service, defines the term *home economist* as a classification title for persons of "recognized education and experience" who are engaged in any one of the branches of home economics. "Home economics is complex. Many other subjects of instruction and investigation are so closely allied to it that in vocational fields it is not easy to tell where home economics stops and other line of work begins." The home economist in her occupation may be employed as: teacher, dietitian, nutritionist, extension worker, research worker, home economist in business. The types of employment open to home economics graduates are classified under six major headings. That under *dietetics* concerns the dietitian who "is engaged primarily in the feeding of groups or individuals. She works in hospitals, restaurants (both commercial and industrial), schools and colleges, day nurseries, clubs, summer resorts, the armed services, etc. She deals with everything pertaining to the food department—planning, purchasing, food preparation and serving, care of equipment, employment of staff, cost accounting, and instruction."

Under *nutrition*, the nutritionist is said to interpret the principles of nutrition to individuals and groups. "She finds employment with welfare agencies such as the Red Cross, home-maker services, and family agencies; with the welfare and health departments of municipal, provincial, and the Dominion governments, and, in some cases, with journals, magazines, and commercial firms which engage in educational publicity. The work may include lectures, demonstrations, consultations, the writing of articles and educational pamphlets, and the preparation of illustrative material. Many nutritionists conduct surveys or engage in laboratory research."

Since 1937 committees of the American Home Economics Association and the American Dietetic Association have worked together on the educational qualifications for nutritionists in health agencies, and in 1941 the American Public Health Association's Committee on Professional Education accepted and published the just mentioned Associations' joint recommendations for the qualifications of nutritionists in health agencies. In the interim there have been marked developments in the field which have occasioned some revision of the earlier report, and the Committee on Professional Education of the American Public Health Association has suggested joint sponsorship of the currently revised recommendations by all three of these national organizations concerned with the training and supervised professional experience of

[1] Available at 10 cents each on application to Laura Ockley, 89 Chatsworth Drive, Toronto, Ontario.

public health nutritionists, following a study of the recommendations by the respective executive boards of the American Home Economics Association and the American Dietetic Association. The report is to be published in the *American Journal of Public Health* prior to its submission to the governing body of the American Public Health Association for final action. Three members of the American Dietetic Association, who are also members of the American Home Economics Association, have served on this subcommittee of the American Public Health Association concerned with the revision: Drs. Helen A. Hunscher and Martha Koehne, and Marjorie Heseltine. Joint sponsorship of the final recommendations would unquestionably strengthen further developments in the increasingly important field of the public health nutritionist.

The movement toward clarifying the status and qualifications of specialists in dietetics and nutrition is also extending to other countries. Recently the Board of Registration of Medical Auxiliaries in England published the first Register of Dietitians, which contains the names of 140 members of the British Dietetic Association.[2] The Board defines dietetics as "the interpretation and application of the scientific principles of nutrition in health and disease." The dietitians so registered agree, in cases of disease, not to undertake the dietetic treatment of any condition except under the direct control of a registered medical practitioner. The register, it is said, is designed for the use of those requiring the services of an expert on all matters pertaining to diet.

QUALIFICATIONS AND RESPONSIBILITIES OF THE FOOD SERVICE MANAGER (DIETITIAN)

A committee of eight women prominent in in-plant feeding, four of whom received their student dietitian training in courses approved by the American Dietetic Association, was recently formed by the National Restaurant Association in response to a request from the restaurant industry "for an outline of the duties that a trained 'dietitian' might be expected to assume in in-plant feeding operations."

According to the Association's Educational Department Bulletin No. 27, "since the term 'dietitian' is frequently misinterpreted, the committee chose to use the better understood title 'food service manager' which describes her active participation in industrial feeding operations" where she would be "responsible only to the manager [presumably of the whole feeding operation]—her immediate superior."

The release lists the "qualities to look for in selecting a food service manager (dietitian)" and outlines the responsibilities which a person so designated may be expected to assume. These last include: to plan weekly menus in cooperation with manager and/or chef; make out order lists for foods and supplies required for these menus; check these deliveries for quality, quantity and price; supervise daily food production; supervise the service of all foods; standardize recipes to control quality, yield and cost, and calculate food cost of each item served; keep or have access to records pertaining directly to food production such as daily menu as served, food control sheets, food order lists, food cost and labor cost percentages, and market price lists; and finally, promote good food selection among workers, employing whatever methods fit best the local situation.

Clearly the present plans of the National Restaurant Association will serve to extend the opportunities for the home economics graduate interested in large group food services.

[2] Foreign Letters (London): J. A. M. A., June 30, 1945.

Current Comment

FEEDING RECOVERED ALLIED MILITARY PERSONNEL

LT. DOROTHY A. C. ADAMS, M.D.D., A.U.S.[1]

When the Admissions Office called and said that we would be receiving some Recovered Allied Military Personnel ("Ramps"), I wondered in what condition they would arrive. I soon found out. They were so undernourished that many of them were brought in on litters. The rest looked like walking skeletons. Never had I seen a group of men in such condition. I hurriedly decided that they would have six small meals a day and the Medical Officer agreed. The menu we prepared was bland and low residue as many of the men were suffering from diarrhea. No puréed vegetables were to be added to the diet for about three days but small servings of puréed canned fruits were permitted. We were all ready for them.

About 100 ambulatory patients came to the Mess Hall the first day. I greeted them and took them to where their diet was being served, cafeteria-fashion, so that they might have the pleasure of serving themselves. A dietitian stood by to advise on the size of the servings. Then as I was very busy I left them. This first meal was the evening meal. For their late evening nourishment, we sent to the wards a malted milk drink that is most acceptable to the patients.

The next morning the officer in charge called me to his office. Nearly all the patients had been vomiting and had diarrhea. I was appalled. I hurried back to the kitchen and wrung out of one cook the fact that, with few exceptions, the men had left the special diet line and gone over to the regular diet line where they had selected a large tray of food. After they had consumed this, they appeared at the special diet line so they could truthfully say that they had eaten what they were supposed to. Naturally they were all ill. But this cured them of transgressing, however hungry they might be.

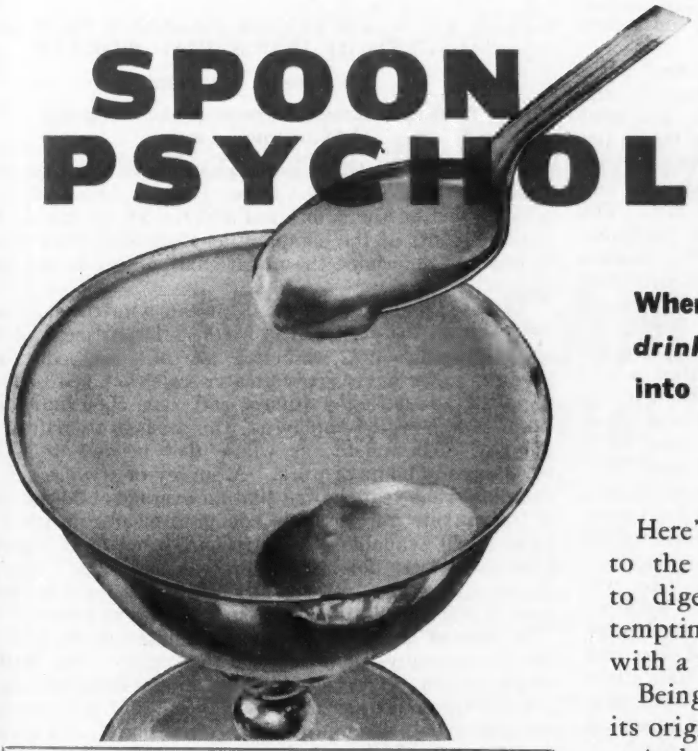
To be able to feed these men and talk with them was a "shot in the arm" to all of us. The morale of the kitchen personnel had slumped with the end of the war in Europe and the feeling of an emergency past. Now their spirits jumped like mercury on a July day. Nothing was too much trouble for these boys.

Puréed vegetables were added to the menu gradually, and milk and gelatin drinks, with buttered toast or dainty meat and chicken sandwiches for between-meal feedings. "Dainty" is a queer word for any food served to GI's. But how they respond to appearance as well as quality and quantity! They jeered, of course, but they enjoyed everything to the utmost.

Several of the patients confined to bed had many symptoms of vitamin deficiencies and a few had gastric or duodenal ulcers. Some had edema of the tissues. The Medical Officer called our attention to their thin emaciated bodies and cracked mouths and the rough gooseflesh appearance of their skin. But in no time they had responded to good food, clean sheets, and fine nursing and were up and around. As soon as they were able to come to mess, they insisted on walking over. The cooks were so concerned

[1] Lieutenant Adams is Head Dietitian of a General Hospital in England.

SPOON PSYCHOLOGY...



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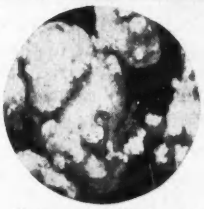
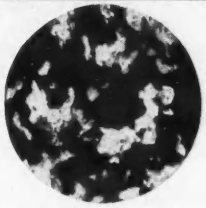
These delightful desserts have flavor, color. Scores of different toppings make possible unending variety.



Untreated Milk Curds
(Actual Size)

Pasteurized sweet milk was stirred into artificial gastric juice at blood temperature. This photograph shows a typical tough, coarse curd which was formed. These large curds are often hard to digest.



Rennet-Custard Curds
(Actual Size)

Rennet-custard made by adding "Junket" Rennet Powder to pasteurized sweet milk was stirred into artificial gastric juice at blood temperature. Note fine, easily digested curds which resulted.

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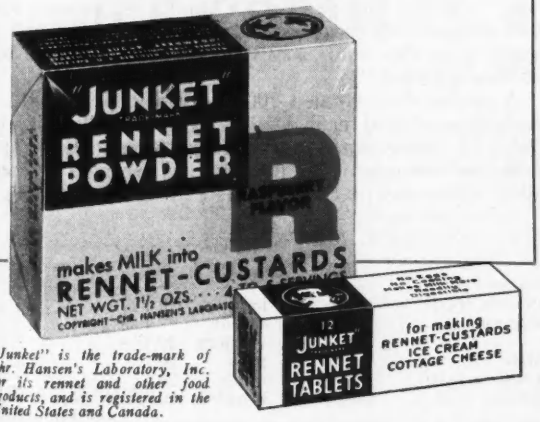

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that they themselves served the first few meals to the men until they grew stronger.

It was thrilling to see them gain in weight and spirit. One boy told me that he had gained 20 pounds the first week and the Medical Officer confirmed this. But after the first large gain, the rest came slowly. The bland diet was given them for three weeks, and then the regular diet was started very slowly, a little being added each day until the men were on a regular high-calorie diet. The ulcer patients followed the usual routine for this condition.

My two assistants and I took turns visiting the patients at each meal. The Mess Officer and the Nutritionist at the Medical Center were most helpful and procured extra food and special rations for us. The requests for special food, in fact, began to come thick and fast. Fortunately, we had just received a machine that would make a gallon of ice cream at a time. We took it to the wards and ice cream was served every day. This satisfied a craving they had long had. One patient asked for a raisin pie and we made it for him. His eyes bulged when he received it, he had been so sure it was an impossibility. This gave another courage and he shyly asked for a pineapple pie. Though we were short of lard, he had his pie and he was pleased and happy.

The "Ramps" had a few food aversions. One was potatoes. After the first day we never served potatoes again. They said that they had dug out of trash piles and heaps of frozen black potatoes all the food they had been able to scrape together for many days at a time. Just the smell of potatoes would nauseate them. They told us of their dreams of food and of having scribbled appealing food combinations on little scraps of paper. Many of these were amusing as well as pitiful. When they were on forced marches, often with police dogs chasing them, they had no food except what they were able to obtain from the civilian population. Some of them had been able to hide their watches and rings from the authorities who made a practice of taking them for "safekeeping." These they bartered for black bread and for Red Cross food supplies that were their own by right but had been stolen by the civilian populace and the excess sold back to the prisoners. I believed these tales, for the boys were from many different camps and all told similar stories.

One lad of 19 said that he could not look at a coal pile for he had been beaten unmercifully for stealing a few lumps to keep hospital patients warm. He had long welts across his back.

The English fiancée of one of the patients came down from the North Country to visit him. They had hoped to be married before the invasion and all the papers had been signed and ready, so he insisted that they be married right then and there, and the Red Cross arranged the wedding and the reception. (I would like to write a story just on the Red Cross personnel!) We supplied much of the food and all the fruit punch. I attended the wedding and we threw a few grains of rice, a food of which little could be spared, over the bride and groom as they came from the church. Pictures were taken before the reception. The British Volunteer Workers had given hundreds of flowers and the Red Cross had arranged the bride's bouquet and the floral decorations.

Never have I seen a gayer or more cooperative group of people than the "Ramps." With them the problem of food waste was nonexistent and they were an excellent example to the others messing with them. From their point of view, everything was perfect, and the world had suddenly become a decent place to live in. When they left they had gained so much weight that it was difficult to tell who was a "Ramp" and who wasn't.

STUDY OF NUTRITIONAL BALANCE OF MEALS SELECTED BY INDUSTRIAL WORKERS

DELORES K. STEWART

Student Dietitian, Eastman Kodak Company Administrative Course

As a student dietitian in the Eastman Kodak Company Administrative Training Course, I was assigned to make a spot check of the noon meal selected by workers in the various plants of the company at Rochester, New York, in order to determine the nutritional balance of the meal chosen.

As stated previously in this JOURNAL, a nutrition adviser has been on the staff of the Medical Department of the company since 1922, directing the nutrition education program on an increasingly greater scale each year. During 1942, the nutrition adviser had some 5000 individual consultations with employees who wished to reduce or increase their weight, or whose diet needed adjusting to changes in hours of work. A survey of trays taken in one plant that year showed that an average of 33 per cent of the workers purchased an adequate meal from the à la carte items available. A nutritionally balanced "special plate meal" was not being offered at that time. During the past year, the nutrition adviser and an assistant held over 11,500 consultations with individual employees.

At present there are 10 graduate dietitians on duty in the 15 company-operated cafeterias where over 20,000 people are fed. The menus include all the foods necessary to make up an adequate, well-balanced, and nutritionally complete meal. In addition, a special plate meal is sold for 35 cents which includes meat, potato, vegetable or salad, bread and butter, beverage, and dessert or fruit.

The present study, based on a spot check of the trays of 2500 workers passing through the à la carte lines, also includes 1200 workers who chose the above-mentioned 35-cent special plate. The form used for evaluating each meal chosen was as follows:

..... Cafeteria

	Score	
Protein food	20	.....
Vegetable	20	.....
Milk, etc.	20	.....
Fruit or salad	20	.....
Energy food	20	.....
Total		.....

Sex.....

The menu was studied before the serving period began and decisions on the rating of each item were made. For example, it was decided to rate spaghetti and meat balls at 20 points as "energy food" and 20 points as "protein food"; cottage cheese, as either "milk" or "protein food"; two scoops of ice cream as the equivalent of one half pint milk; vegetable soup as "vegetable" and potato salad as "energy food."

A perfect tray totaled 100 and included 20 points for each type of food, each food being given full rating once only. A tray composed of meat, potato and gravy, peas, milk, and chocolate pie, for example, received a score of 80 as there was no fruit or salad (Table 1, Tray 1). A

TABLE 1

	TRAY 1		TRAY 2		TRAY 3	
Protein food	meat	20	ham	20		
Vegetable	peas	20	carrot, celery	20		
Milk, etc.	milk	20	milk	20		
Fruit or salad			apple	20		
Energy food	pie	20	bread	20	rice, pie, bread, and butter	20
Totals		80		100		20

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ham sandwich, carrot sticks, celery, milk, and an apple would total 100 (Tray 2). A tray with boiled rice, butterscotch pie, bread and butter, would receive a rating of 20 for energy food (Tray 3).

The percentage of workers selecting an adequate meal, including those who chose the special plate, was 62 per cent, or an increase of 88 per cent over the number in 1942 when the special plate meal was not offered. The trays chosen by the men showed a slightly higher percentage of "perfect" scores, 64 per cent, than those chosen by the women (60 per cent). An "energy food" was chosen by 96.6 per cent of the workers and varied but slightly for men and women. A "protein food" was chosen by 83.1 per cent of the men and by only 62.2 per cent of the women. More men consumed milk, 59.8 per cent, as compared to 52.3 per cent of the women. Vegetables and fruits or salads were chosen by the smallest number, vegetables appearing on 43 per cent of the men's trays and 40.4 per cent of the women's, and fruits or salads on 35 per cent of the men's trays and 50.6 per cent of the women's.

It has been suggested that current food shortages are to a certain extent responsible for the increase in the number of workers who eat an adequate noon meal in the plant cafeterias. It would seem, however, that this is not an overbalancing factor, since the cafeterias have had to use many meat-substitute and meat-extender dishes because of these same shortages. It appears, then, that a nutrition education program does result in better food habits and that its scope should continue to be increased to include more and more workers. In addition, it seems of value to include a special plate meal. We also know that we must offer foods carefully prepared and attractively served to promote sales. A combination of all these factors is necessary if better nutrition for the worker is to be achieved.

TRAINING EMPLOYEES IN THE HOSPITAL DIETARY DEPARTMENT

MAGDALIN KLOBE

Administrative Assistant Dietitian, St. Luke's Hospital, Cleveland

In the next several years we will no doubt see drastic changes in job instruction in hospital dietary departments. The War Manpower Commission with its Training Within Industry Program has already made a beginning in this direction, and we as hospital dietitians can continue to observe the principles established by them to good advantage. We are all aware of the fact that the skills and cooperation of employers and employees have a vital effect on food production as well as on production in industry.

Too many times we have evaded the problem of teaching a new employee by shifting the responsibility. At times our first impression of an applicant is something like this: "That woman will never be able to operate the dishwashing machine!" Then, because the employment situation is tight, we hire her and immediately turn her over to another employee for instruction. That is one of the main reasons our turnover of help is so high. If you rationalized by using the war as an excuse, what will be the excuse in peacetime? An employee training program may be difficult to initiate, but the results are well worth the effort, for maximum efficiency of an employee is attained mainly through teaching.

At St. Luke's Hospital, Cleveland, the Dietary Department is teaching the use of kitchen equipment to student dietitians who, in turn, will teach new employees. Student dietitians today have a good opportunity to develop training programs, since their own training has incorporated the fundamental groundwork of T.W.I. The whole program is wide in scope; this paper deals only with teaching the use of equipment.

First of all, students are required to attend a series of lectures by the director of dietetics or other staff members, all of whom have previously taken the T.W.I. course. These lectures cover the principles outlined for Job Instruction Training and Training Within Industry. The foundations of satisfactory personal relations are stressed as a means of teaching the students the importance of getting along well with people. These foundations include four points: Let each worker know how he is getting along. Give credit when credit is due. Tell people in advance about changes that will affect them. Make the best use of each person's ability.

The basic methods used for instruction are also emphasized. The first important step is to prepare the worker by putting him at ease and encouraging an interest in learning the job. Then the operation is presented by illustration and a clear explanation is given of one point at a time. The third step is the tryout performance in which the employee performs the job for the instructor; this is continued until the employee understands the operation. In the follow-up, the employee is put on his own and is frequently checked by the supervisor. Upon completion of the lectures each student demonstrates before the class the use of one piece of equipment. Job sheets in which all principal steps are first listed and then broken down in detail into key points of the job are made for each demonstration.

During the student's kitchen experience she is expected to learn the use of all pieces of equipment under the supervision of the kitchen dietitian. This includes a job breakdown sheet for each operation. The student also accompanies the maintenance worker when he oils equipment. The kitchen dietitian then feels that she may send any new employee to a student dietitian for proper instruction in the use of equipment.

At the end of her kitchen experience each student is required to hand in a notebook which includes a diagram and list of instructions for the operation of all equipment. Figure 1 (*see* p. 536) shows the ice cream freezer with instructions for making ice cream. The forms given to students are similar to this, except that the numbers are omitted from the diagrams and are filled in by the student to correspond with the instruction. Similar charts are used for the mixer, glass washer, dishwasher, food chopper, coffee urn, meat slicer, potato peeler, and silver burnisher.

The effort expended in such a training program is well repaid by the results and this type of training leads to better cooperation between employer and employee. More interest is taken by the employee if he knows why and how to use each piece of equipment. Also, the trainer can make the employee feel that he is essential to his job. In my opinion, employee training supervisors will undoubtedly play an important role in hospital dietary departments in the near future.

. . . "If you're in a hurry to handle DOUBLE-TOUGH TUMBLERS just grab a shovel!"

. . . It sounds strange but after their basement was flooded, that's exactly what T. M. James & Sons China Company of Kansas City, Mo. did.

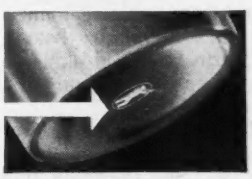
With five hundred wet and soggy cartons of *Double-Toughs* littering the floor, clean-up measures had to be drastic — thus the shovel. The surprising results are best stated by C. M. James who says: "If we find over a dozen *Double-Tough* tumblers that are broken I will be very much surprised!"

We hope you may never have such an experience in your business, but it's good to know—the next time you buy — that sparkling, thin Corning *Double-Tough* tumblers can really take punishment well beyond the line of everyday duty.

Insist on Corning *Double-Tough* tumblers from your distributor, or write Consumer Products Division, Corning Glass Works, Corning, N. Y.

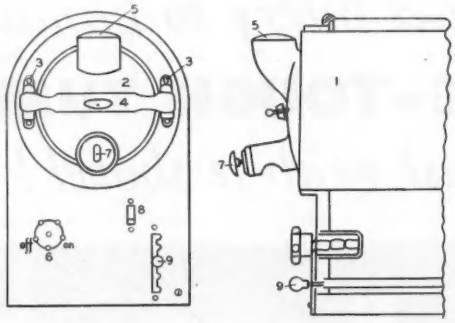
THIS LITTLE GLASSBLOWER SAVES YOU MONEY

This Corning trade-mark appears on the bottom of every *Double-Tough* tumbler . . . the tumbler that will cut your tumbler breakage by at least 50% (many customers claim more.)



CORNING means Research in Glass

Corning double-tough Tumblers



FRONT VIEW SIDE VIEW

FIG. 1. *Ice cream freezer*

Instructions for Making Ice Cream

1. Have all equipment and supplies ready before starting, including: 5-qt. container, measuring cup, spatula, cans and covers, glass marked with ounces, mix, and flavors.
2. Sterilize cans and freezer. Add 1 tsp. disinfectant (Diversol) to 5 qt. cold water. Use the same solution to sterilize both cans and freezer.
3. Put cans into hardening cabinet to chill for prevention of crystallization and melting of ice cream.
4. Fit beater into cylinder (1) for freezing.
5. Close door (2) and put on clamp bar pin (3). Be sure both clamp bar pins are in.
6. Tighten clamp bar (4) on front of freezer.
7. Pour 5 qt. ice cream mix into easy-pour filler (5) and close cap.
8. Turn refrigerator hand valve (6) to point labeled "on."
9. Allow mixture to freeze to a mush which will definitely hold its shape. Test this by opening the draw flex valve (7) and letting a small amount of ice cream flow into a cup.
10. After cream has reached the desired consistency turn off hand valve (6) and turn on beater motor switch (8). Speed of beater may be regulated by moving knob (9). *It is of utmost importance to turn off freezer hand valve to prevent breaking beater.*
11. When ice cream has been sufficiently whipped, it will fill the easy-pour filler (5). Pull out draw flex (7) leaving the beater on (8) and let ice cream flow into can which is placed on shelf beneath.
12. Place can of newly made ice cream in freezing cabinet (10° below zero) for 12 hours. Then remove to dispensing cabinet (10° above zero) until used.

PERSONNEL MANAGEMENT IN THE INDUSTRIAL CAFETERIA

MARY C. KELLY

Cafeteria Manager, Ætna Life Affiliated Companies, Hartford, Conn.

It seems almost venturesome to embark upon a discussion of help shortages in cafeterias these days. Here in Hartford we have been faced with this problem since long before the war. We all know that harassed managers are in need of all the help they can get these days. Handicapped by food shortages, limited by ration points, and urged to use time-consuming recipes or fresh foods, obtainable only at prices too high for the budget, these managers realize that, nonetheless, the help problem is the most acute of all.

Let us start with the manager. The wise manager should realize first of all that she will not be able to run her cafeteria as outlined in her college textbook. Today's problems are altogether different from those covered in the textbooks published some little while ago. Today the cafeteria manager must be prepared to fill in on any job on a temporary basis. This means that she should cultivate technical skills so that at least she will be as efficient as the person for whom she is temporarily substituting.

The wise manager, too, must recognize that many theories of management have been abandoned of necessity. She therefore finds herself forced to use very elastic schedules as she handles an increased volume of business with fewer, less efficient employees. Her method of buying, too, has changed. She takes what is allocated her by the wholesaler at a time convenient to him. The fact that point values may change unexpectedly between the time an order is placed and the time it is delivered she must learn to take in her stride. Furthermore, the manager has had to devise ways and means of keeping cleaning and maintenance standards as high as possible, even though there are fewer hands to do the work. About the only certainty these days is that a lot of hungry people will flood our cafeterias and that somehow we must be able to feed them.

On finding herself in such a situation, a youthful and inexperienced manager might be inclined to throw up her hands in despair. But the older manager is more seasoned, more tolerant. She knows that no one ever did a perfect job and that in merely keeping her cafeteria open she is performing a feat of no mean proportions. She knows further that the experience she has gained in the war years will be invaluable in running a smoother, better establishment in peacetime.

Certainly the problems we have had to face in the last few years have taught us all how desirable it would be if the training of future cafeteria managers emphasized such subjects as the handling of personnel.

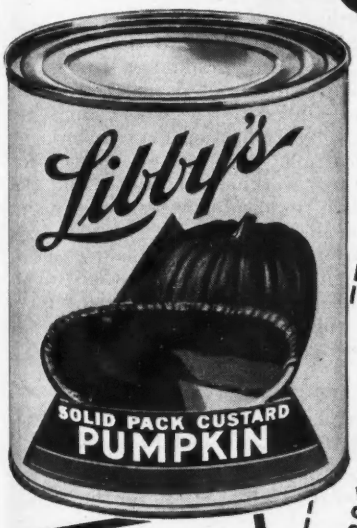
It might be well to ask ourselves: What do we expect of our cafeteria employees? What have they a right to expect of us?

To begin with, private company cafeterias, school cafeterias, hospital cafeterias, and restaurants all have different problems, but it is possible to say that in general there are certain basic personnel standards which apply to all of these organizations. Included among these might be cleanliness, good health, ability to work with others, character, and willingness to learn.

For their part, employees have a right to expect a clean place to work in, associates who have passed physical examinations, good food, adequate salaries, and a competent manager.

The cafeteria manager's first step, therefore, is to hire, as far as possible, employees who meet the above-mentioned standards. The second is for her to make sure

Those who serve Libby's PUMPKIN PIES win the popularity prize!



This famous Solid Pack Custard Pumpkin makes pies

RICH . . .
GOLDEN . .
DELICIOUS

CHIFFON PUMPKIN PIE

INGREDIENTS	WEIGHT OR AMOUNT	MEASURE
Gelatin	1½ oz.	6 T
Water	1½ c.	1½ c.
Cinnamon	3 T.	3 T.
Nutmeg	1 T.	1 T.
Ginger	1 t.	1 t.
Salt	2 T.	2 T.
Brown sugar	1⅛ lbs.	3 c.
Libby's Evaporated Milk diluted with	2 c.	2 c.
Water		
Libby's Pumpkin	2 c.	2 c.
Libby's Evaporated Milk	1 No. 10 can	12 c.
Vanilla	3½ c.	3½ c.
Graham cracker crusts (9 in.)	1 T.	1 T.
Graham crackers, rolled	8	
	4 oz.	1 c.

METHOD: Soften gelatin in cold water. Combine spices, salt, and sugar. Mix well. Add to pumpkin. Add diluted milk. Blend well. Place in a double boiler. Heat to the boiling point. Remove from heat. Add softened gelatin; stir until dissolved. (The pumpkin must be thoroughly heated to dissolve the gelatin.) Chill thoroughly. Fold in whipped evaporated milk and vanilla. Pour into 8 graham cracker crusts. Top each pie with 2 tablespoons graham cracker crumbs. Chill thoroughly.

NUMBER OF SERVINGS: *approximately 48 (8-9 inch pies, cut 6 pieces to a pie).*

FROM THE KITCHEN OF *Mary Hale Martin* LIBBY, McNEILL & LIBBY, CHICAGO 9.

● Whether you use the old-time recipe or the Chiffon Pumpkin recipe here, Libby's always gives you pumpkin pie to be *proud* of!

Frankly, our pumpkin is the nation's largest selling brand—the envy of the industry—the standard of comparison.

We grow our pumpkins from special seed developed exclusively for Libby's. That's one reason our pumpkin pack is so superior in color, texture and flavor. Then we give it to you *Solid Pack Custard-style*—pumpkin from which as much moisture as possible has been removed before canning. That's why Libby's is a *just-right* consistency for pies and custards . . . and an *all-round* favorite.

If you've never tried Libby's, you have a new and happy experience ahead. Order Libby's today.

LIBBY, McNEILL & LIBBY *Chicago 9, Ill.*

LOOK TO LIBBY'S FOR PERFECTION

that she, in turn, is meeting the standards expected of her as a manager. Unless these two steps are taken, all else is futile.

But these are mere generalities. I would like to tell you what we have done in the cafeteria of the Ætna Life Affiliated Companies in Hartford to hold our employees. Our problems, we believe, have been especially acute since restaurant workers have always been scarce in this city.

When in 1941 we found that a number of our part-time employees, most of them women, were beginning to leave to take higher paying jobs, we reviewed our wage scale and established three classifications with minimum and maximum rates. We also provided for an automatic increase at the end of 3-month and 12-month periods. We inaugurated a bonus system, too, for we wanted each worker to feel that he was a vital part of the cafeteria. As a result, every fifth week we offer two and a half days' pay to each employee who has been neither absent nor tardy, provided the cafeteria attendance has totaled at least 75 per cent of the number of home office employees.

At the same time we decided to retain the standard of physical fitness and every applicant for work has to pass a regular insurance physical examination, in addition to a food handler's examination, before he can be seriously interviewed for a position. Only a few Hartford restaurants include this requirement and we questioned whether we could obtain replacements in the tight local labor market, subsequently classified by the Government as Critical Area Number One. However, we turned this requirement into an advantage by pointing out to housewives that their associates in our cafeteria would be the same type as those with whom they mingle in everyday life.

Furthermore, there was no relaxation of the company policy that the kitchens and dining rooms should be kept immaculately clean by thorough scrubbing every day and many women accustomed to cleanliness at home were glad to find work under similar conditions.

Since some of the women who applied for work had been employed in other restaurants, we tried to find out their reasons for making a change. Frequently it was due to dissatisfaction with supervision or to lack of definite work instructions. We have urged our dietitians to be fully specific in work directions and to keep in close enough contact with employees to know them well. This latter had become increasingly important as the war continued. Practically every person in our employ had close relatives in the service and her thoughts were chiefly of them. Our work had to be of secondary consideration and we were fully cognizant of this.

Many phases of the rationing program have added to the amount of labor required to produce the increased volume of food needed for 2000 people every noon. As food became scarce at home and women replaced men in our organization, almost everyone bought a dinner instead of a luncheon and the per capita expenditure has increased almost 30 per cent. In addition to this extra work, we have found that many extra work-hours are needed because of restrictions. For example, we make our own ice cream and when the quota of mix is inadequate for the sale, more desserts have to be made; meat-stretching recipes require special attention and longer hours of preparation; lack of canned and quick-frozen fruits and vegetables means laborious preparation of expensive fresh ones; the shortage of milk and salt pork permits few creamed dishes and chowders or milk soups; inability to obtain loaf or packaged sugar means that bulk sugar has to be put into individual envelopes by hand.

We employ carefully selected employees of our own organization to clear dining room tables at noon and to help at a few of the counter stations. They have done a faithful and conscientious job and provided us with the additional number of employees needed during the peak period.

We have tried to recognize the definitely changed labor status and to attract women by offering them atmosphere, associates, and working conditions comparable to those in their own homes.

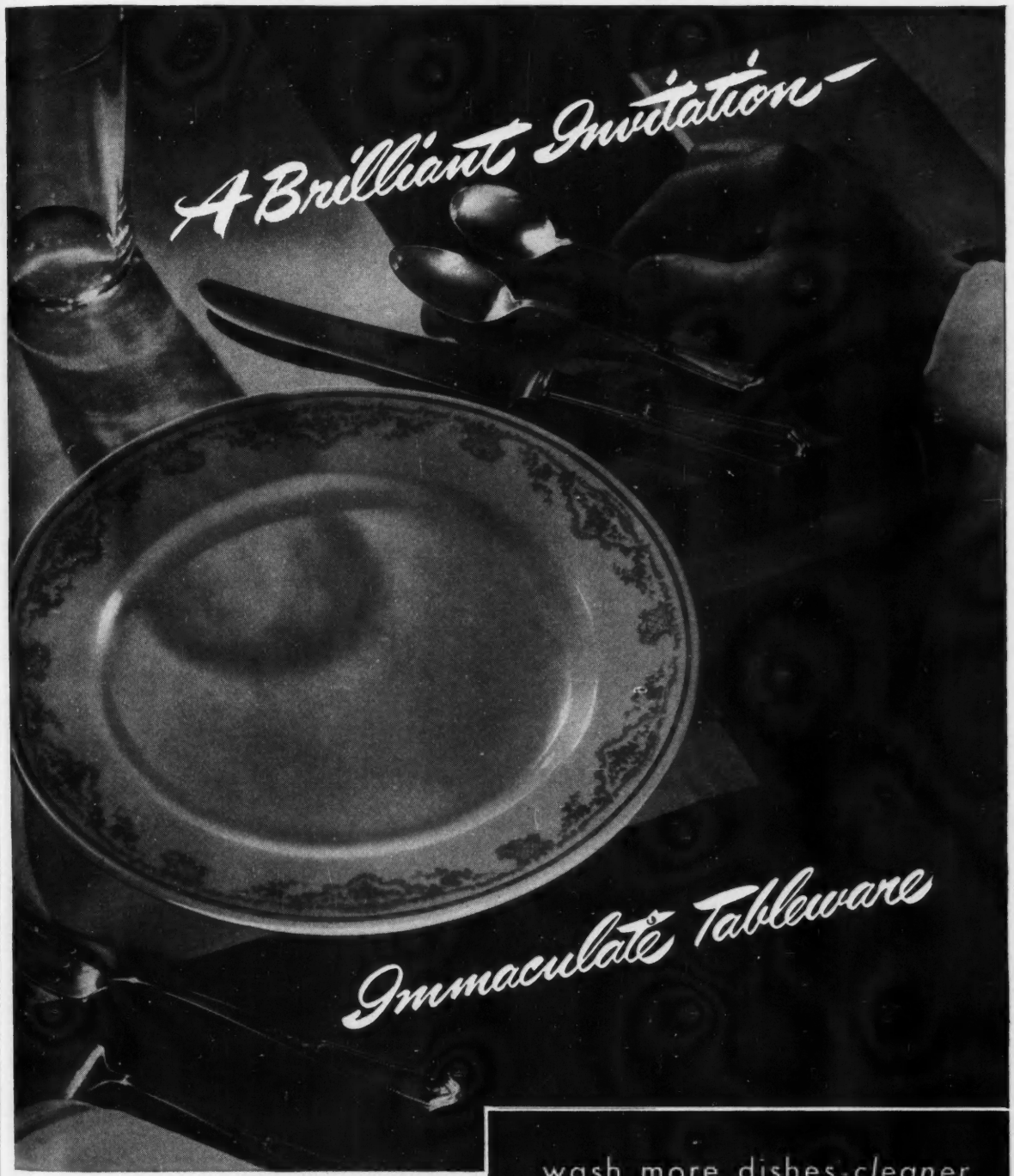
The Connecticut Dietetic Association recently sent a copy of *Dietetics as a Profession*, published by the American Dietetic Association, to every school principal in the state, and offered to provide assistance for vocational advisers and speakers for student assemblies. We feel that if girls know the need for their services and the opportunities available they may be stimulated to study dietetics. Later it might be desirable to contact other students who plan to work after graduation from high school and provide them with printed material which can be taken home and studied by the whole family so that other positions in our organization may be brought to their attention with emphasis on the possibilities for advancement, the pleasant working conditions, and the fact that food service is a responsibility for which many women have a natural facility.

Our labor situation after the war will be made easier if we set our standards high and maintain them and if we can interest the many people who will be searching for a new field of work. It will be helpful if we can establish in the public mind the desirability of our work for the prospective employee.

APPOINTMENTS AND PROMOTIONS, ARMY MEDICAL DEPARTMENT DIETITIANS

The following were appointed Medical Department Dietitians in the Army of the United States for the month of June 1945:

Conrad, Mary Martha: Kansas State Col.; Brooke G. H., Ft. Sam Houston.
Costley, Mary Louise: Utah State Agricultural Col.; Harper Hosp., Detroit.
Cotter, Anastastia: Mercyhurst Col.
De Cock, Leona Rachel: Univ. of Montana; Massachusetts G. H.
Dolenc, Emily Anne: Kent State Univ., Ohio; Brooke G. H.
Dore, Marian Virginia: Univ. of Washington; Harper Hosp.
Easton, Penelope Standish: Univ. of Vermont; Brooke G. H.
Forbes, Enid: Iowa State Col.
Gasson, Frances Mary: Massachusetts State Col.; Cincinnati G. H.
Gould, Rosemary Milne: Michigan State Col.; Brooke G. H.
Hayes, Jane Bagley: Univ. of Kentucky; Brooke G. H.
Heckel, Mary Jean: North Dakota State Col.; Stanford Univ. Hosp.
Holke, Mary Bess: Iowa State Col.; Harper Hosp.
Kay, Alice Stone: Drexel Inst.
Klehm, Constance Jean: Washington State Col.; Stanford Univ. Hosp.
Luessen, Evelyn Lois: Ohio Wesleyan Univ.; Cincinnati G. H.
Lyng, Anna Lenore: Syracuse Univ.
Malone, Ann: Univ. of California; Hammond G. H., Modesto, Calif.
Marino, Angela Marie: Univ. of Missouri; Cook County Hosp., Chicago.
Middlesworth, Naomi Faye: Ohio State Univ.; Brooke G. H.
Morley, Lois Jane: Montana State Col.; Brooke G. H.
Mueller, Betty Mae: Univ. of Washington; Cincinnati G. H.
Murdick, Joyce: Univ. of Alabama; St. Luke's Hosp., New York.
Murphy, Elizabeth: Pratt Inst., Brooklyn, New York; St. Luke's Hosp., New York.
Parsons, Jean: Univ. of Wichita, Kans.; Johns Hopkins Hosp.
Peterson, Elva Christine: Santa Barbara State Col., Calif.; Madigan G. H., Wash.
Rogers, Phyllis Mae: Colorado State Col. of A. & M.; Mercy Hosp., Chicago.
Saklem, Marjorie Harmana: Iowa State Col.; Hines Hosp., Ill.



In today's rush of business remember—guests associate sparkling tableware with clean kitchens and quality food . . . Use Calgonite. Calgonite contains a full 40% of Calgon*—the *one* material that makes water 100% soft—stimulates alkaline cleansing to *vigorous activity*—prevents film on tableware and scum or scale in the machine . . . Write for our free booklet containing complete instructions for better dishwashing. Address: Calgon, Inc., a subsidiary of Hagan Corporation, Hagan Building, Pittsburgh 30, Pennsylvania.

wash more dishes-cleaner

use Calgonite

it contains 40% Calgon

*CALGONITE *for mechanical dishwashing* *NOCA *for hand dishwashing and glass washing* *CALGOLAC. *The new sudsless cleanser for sparkling glassware*

**Registered trade-marks of Calgon, Inc.*

Smith, Frances Elizabeth: Santa Barbara State Col.; Hammond G. H.
Stafford, Helen Ray: Texas State Col. for Women; Brooke G. H.
Stambler, Marion May: Univ. of Toronto, Canada.
Stephenson, Zelda Jane: Colorado State Col. of A. & M.; Michael Reese Hosp., Chicago.
Tope, Mary Agnes: Ohio State Univ.; Brooke G. H.
Tracy, Helen Marie: Univ. of California; Hammond G. H.
Trocinsky, Frances Josephine: Iowa State Col.; Mercy Hosp.
Wendell, Maxine Nellie: Miami Univ., Ohio; Cincinnati G. H.

The following were appointed Medical Department Dietitians in the Army of the United States for the month of July 1945:

Anoszko, Anne Bernadette: Univ of Wisconsin; Edw. J. Meyer Mem. Hosp., Buffalo, N. Y., and Ft. Leonard Wood.
Carr, Margery Walton: Oregon State Col.; Univ. of Oregon Medical School Hosp., Portland.
Davis, Doris Vivian: Indiana Univ.; Madigan G. H., Ft. Lewis, Wash.
Gervais, Barbara Anne: Framingham State Teachers Col.; Beth Israel Hosp., Boston.
Goodwin, Marjorie: Oregon State Col.; Peter Bent Brigham Hosp., Boston.
Hill, Edith Ailene: Univ. of Idaho; Christ Hosp., Cincinnati.
Hvidston, Ruth Marie: Iowa State Col.; Cincinnati G. H.
Jones, Katherine Ann.: Kansas State Col.; New York Hosp., New York.
McCormack, Marian Louise: Women's Col. of Univ. of Delaware; Philadelphia G. H.
Meyer, Nancy Lee: Univ. of Colorado; Lawson G. H., Atlanta, Ga., and Halloran G. H., New York.
Molenaar, Margaret Irene: Univ. of North Dakota; Colorado G. H., Denver.
Mooney, Gertrude Patricia: Marywood Col.; Brooke G. H.
Muus, Orpha Louise: Iowa State Col.; Peter Bent Brigham Hosp.
Nye, Beulah Estella: Univ. of California; Bushnell G. H., Utah.
Obuhanych, Sophia Nikitovna: Mary Washington Col. of the Univ. of Virginia; Grasslands Hosp., Valhalla, N. Y.
Park, Geraldine Blanche: Pennsylvania State Col.
Roach, Ivy Ophelia: Hunter Col., New York.
Sheret, Virginia: State Teachers Col., Buffalo, N. Y.; Kennedy G. H., Memphis.
Stirratt, Mildred Charlyn: Iowa State Col.; St. Mary's Hosp., Rochester, Minn.
Zimmerman, Donna Patricia: Oregon State Col.; Cincinnati G. H.

The following Medical Department Dietitians, on duty in Army hospitals in this country and overseas, were promoted during the month of June 1945:

First Lieutenants to Captains

Behlen, Margaret Katherine, R-8
Lord, Erma G., R-321
Lutz, Florence Hamblin, R-653
MacLean, Helen Catherine, R-663
Moseman, Martha Elizabeth, R-27
Murray, Elizabeth Maxine, R-395
Nagle, Kathryn Marie, R-20
Natarus, Rosalie Carol, R-202
O'Connor, Margaret Cecelia, R-707
Perry, Miriam E., R-612
Rogers, Virginia Lucile, R-353
Toreson, Dorothy Enright, R-298
Waldman, Eleanor, R-119
Wiley, Ruth Adeline, R-46
Willis, Mildred Thomas, R-794

Second Lieutenants to First Lieutenants

Villinger, Hazel Warren, R-731
Chapin, Hazel Ruth, R-1343
Kopec, S. Virginia, R-2115
McCormick, Jean Arlene, R-1393
Olson, Josephine Mayhew, R-2004
Richards, Georgia Belle, R-1351
Ruane, Catherine Marie, R-2027
Tavis, Clara Bell, R-1035
Warner, Virginia Maher, R-1067
Young, Belle, R-1377
Barglof, Dorothy Jean, R-2002
Lescalleet, Harriet Roberta, R-1422
Cleary, Kathleen Patricia, R-798
Anderson, Josephine Raney, R-222
Belmont, Evelyn Elaine, R-1233
Brillhart, Ruth Margaret, R-972
Cleghorn, Elizabeth, R-421
Fitch, Ruth Cleo, R-909
Breazeale, Mary, R-84
Cables, Grace M. C., R-1040
Castner, Betty Kathryn, R-1365
Charles, Virginia Ruth, R-1124
Johnson, Grace Eleanor, R-975
Leidy, Edith, R-1057
Levin, Jessie Etta, R-502
Fogg, Dorothy Elizabeth, R-781
Heisler, Virginia Cranmer, R-1213
Henderson, Henrietta, R-1045
Hobson, Edith Marie, R-998
Hopkins, Virginia Murray, R-1109
Krejci, Helen Dolores, R-1102
Mason, Angela Patricia, R-1075
Moore, Nell Louise, R-152
Nicola, Iola Elizabeth, R-830
Olson, Genevieve June, R-841
Moore, Marion Elizabeth, R-748
Ness, Alene Victoria, R-339
Harrison, Louisa Bell, R-923
Randolph, Ruth Ann, R-997
Chapman, Betty I., R-1329
Kantrowitz, Jean Roberta, R-2034
Mendelson, Rita, R-1100
Reichman, Alice Beatrice, R-807
Bonney, Mary Elizabeth, R-956
Carson, Maude Elaine, R-758
Flaherty, Betty Frances, R-754
Jensen, Marion Ann, R-1245
Pollin, Natalie Irma, R-958
Koch, Leona Frances, R-884
Reams, Ruth Arlene, R-597
Bowman, Pauline Frei, R-1366
Buckley, Ann Hamilton, R-966
Casey, Mary Lois, R-1211
David, Mary Ellen, R-1234
Huwiler, Marjorie Louisa, R-831
Newcomb, Margaret Oreana, R-1319
Pawlicki, Audre Elizabeth, R-1009
White, Elizabeth Anne, R-1025
Pfluke, Eleanor Nina, R-1063
Weber, Leonora Marie, R-423
Crance, Anna Laura, R-383
Klimesh, Marcella Edna, R-902
La Forge, Laviana Laurie, R-812
Lantz, Marcella Mae, R-1172
Makivirta, Soini Linnea, R-809
McIntire, Natalie, R-1263
Miller, Wilma L., R-1181
Nelson, Esther Ella, R-1268
O'Hanlon, Wilda Fern, R-1060
Olson, Ruth Marion, R-1014
Quine, Edith Shirley, R-2006
Schlottman, Sibyl, R-1096
Sneller, Emelia Elizabeth, R-1089
Summers, Evelyn Glenn, R-1254
Tidd, Caroline Elizabeth, R-896
Visel, Kathryn Jeanne, R-1176
Williams, Mary Anita, R-1085
Walsh, Teresa Mae, R-1269
Yokela, Edith Marie, R-1434
Ball, Elgevia Alma, R-982
Cooney, Helen Fern, R-1073
Day, Evelyn Alice, R-567
Krause, Margaret Josephine, R-1020
Seelye, Katherine Lemoyne, R-465
Soule, Thelma Elaine, R-882
Spoklie, Mildred Beatrice, R-1296
Webster, Emma Louise, R-1003
Burnham, Mary Challomer, R-64
Jondal, Dorothy Evelyn, R-839
Waterman, Leah May, R-978
Zendzian, Wanda Julia, R-918
Cohen, Miriam, R-1144
Finch, Mary Sibley, R-1084
Fisher, Marion Elizabeth, R-112
Roberts, Lou Sophia Steenerson, R-1016
Richards, Betty Rose, R-1134
Siegal, Rosalyn, R-111
Shapiro, Leona R., R-1222
Schafer, Mary Louise, R-1158
Murray, Margaret G., R-660
Mallon, Ruth Elizabeth, R-1218
Sleddon, Barbara Marion, R-949

what a morning! what a meal!

—this rousing good breakfast of hearty whole wheat

Here it is!

A delicious breakfast that's tops for taste! Because in every golden biscuit of Nabisco Shredded Wheat there's full, ripe, *natural* flavor!

Patients get real body, too, in this mellow whole-wheat cereal —sturdy nourishment they need at breakfast. Ask the doctor! Then when he says "O.K." you can serve this delightful dish that's just as nourishing as a bowl of hot cereal.

Fresh, crunchy Nabisco Shredded Wheat—the original Niagara Falls product breaks up humdrum for the patient at breakfast... supper!

DELICIOUS, READY TO SERVE... YET AS NOURISHING AS A HOT CEREAL

ANOTHER DELICIOUS PRODUCT BAKED BY **NABISCO** NATIONAL BISCUIT COMPANY

Smith, Carolyn Edith, R-1064
Sarry, Carmela Marie, R-793
Sparkman, Margaret K., R-1001
Thorton, Ruth Elizabeth, R-1283
Triplett, Mary Arther, R-929
Tull, Margaret Elizabeth, R-1197
Wakefield, Ella Louise, R-402
Wakefield, Elinor Alberta, R-845
Ward, Marion Gertrude, R-1217
Halbert, Ida Elizabeth, R-478
Kibbe, Dorothy Lucia, R-2012
Brown, Thelma Adeline Fisher, R-420
Aitcheson, Catherine Elizabeth, R-867
Brouard, Ruth Irene, R-1139
Gillespie, Frances Josephine, R-1308
Healey, Marjorie Bates, R-401
Sexauer, Bernice Margaret, R-1050
Lerner, Lillian Beatrice, R-1322
Greenbaum, Jeannette, R-586
Fowler, Sina Faye, R-959
Lundstrom, Evelyn Marie, R-2050
Morris, May, R-816
Sellers, Merle Martha, R-776
Evans, Dorothy Ann, R-952
Greene, Ethel Olney, R-621
Zambrano, Louise C., R-1088
McKnight, Eleanor Louise, R-164

The following Medical Department Dietitians, on duty in Army hospitals in this country and overseas, were promoted during the month of July 1945:

First Lieutenants to Captains

Boelts, Ethel Irene, R-630
Keith, Allison Dian, R-259
Messersmith, Luceil May, R-110

Second Lieutenants to First Lieutenants

Bier, C. Margaret, R-899
Clayton, Hannah Ellen, R-1142
Summers, Ruth Mary, R-458
Hunt, Nellie Virginia, R-1047
Gordon, Esther Elizabeth, R-965
Williams, Sarah Frances, R-728
Nichols, Ruth Virginia, R-63
Clifford, Deborah Merrill, R-1253
Denio, Ethel Dorothy, R-1021
Gutsch, Minna Louise, R-1128
Franklin, Margaret Virginia, R-1400
Harris, Rosemary Ann, R-1369
Reinhart, Frances Victoria, R-2047
Strickler, Alice Louise, R-1368
Willig, Hannah, R-652
Harlan, Jean Eleanor, R-1187
McElreath, Mildred Frances, R-191
Boyd, Ruth Ann, R-779
Garn, Mada Celia, R-1062
Hatfield, Cathryn Jean Bacon, R-804
Levy, Shirley Ruth, R-703
Boyett, Erma Lowell, R-1169
Jewell, Alice Helen, R-129
Knerr, Adele, R-1058
Williamson, Martha Elizabeth, R-1168
Murphy, Dorothy J. Bissell, R-1019
Saluri, Mary Aimone, R-946
Sherwood, Mary Abbie, R-875
Woideck, Faith Sullivan, R-580
LaBerge, Annette Marie, R-810
Farnsworth, Jennie Lucille, R-1326
Lundeen, Helen Janet, R-1311
Wedlake, Gwen Howe, R-666
Murray, Marguerite Ruth, R-868
Walker, Georgia Lucille, R-943
Schupp, Harriet Louise, R-1325
Kendrick, Rowena Alcia, R-592
O'Donnell, Mary Catherine, R-1226
Hawkins, Jean Marguerite, R-799
Whitehead, Margaret, R-908
Tauber, Roslyn Lucille, R-496
Heim, Dolores Mary, R-935
Jarussi, Rosemary, R-1180
Kutnick, Marion, R-1205
Motley, Dellamae, R-234
McIntyre, Elizabeth Jane, R-759
Tilley, Mary Frances, R-897
Watkins, Annabel, R-1132
Brandon, Marialta, R-1081
Burchuk, Clara Mary, R-1251
Rafferty, Kathleen Josephine, R-862
Sanborn, Jean Cummings, R-1237
Steele, Elizabeth Jane, R-1174
Hershey, Miriam Adele, R-1092
Curran, Catherine Bannon, R-581
Finch, Helen Elaine, R-850
Thoreson, Pearl Agnes, R-596
Wallace, Ruth E., R-1421
Church, Marjorie Jean, R-835
Zerell, Adelheid Marion, R-1293
Yoksa, Victoria Mary, R-494
Zamsky, Helen Sylvia, R-509
Sims, Jane Foliart, R-932
Wilcox, Lola Grace, R-865
Hurka, Eleanor Mae, R-791

Descriptive Labeling. Any buying guide, whether by specified terms or by grades, necessitates memorizing the specific meaning behind those terms or grades if that buying guide is to be a useful tool. Most homemakers don't memorize the vast amount of data for every product that makes symbols significant. The simplest answer devised to date to give complete information, with a minimum of effort on the purchaser's part, is *good descriptive labeling.*

Various divisions of the food industry are working to develop uniform terms that will give the best description of the products in simple language. Discriminating purchasing even with good descriptive labels requires some effort—reading the label. But good descriptive labels can tell the story so that it is understandable to anyone who will take the time to read the descriptions.

To learn which qualities are of most importance to most women, the Grocery Manufacturers' Information Council asked 300 homemakers in 6 cities this question: "Which four or five of the following characteristics of food do you think are very important in describing food? In other words, what are you most interested in when you buy? The replies when tabulated showed this order of preference: nutritive value 72%, flavor 64, number of servings 59, contents by weight 45, methods of preparing 37, absence of defects 36, seasoning 29, wholeness 27, style of pack 17, texture 16, degree of maturity 13, variety 11, uniform size of units 10, consistency 9, uniform color 7, clarity of liquid 5%.

A question was asked in this survey to measure preference for (1) brand or trade mark and government standard grades A, B, or C and (2) brand or trade mark and simple but detailed description of the contents. Forty-two per cent voted for brand or trade mark and grade, 49% for brand or trade mark and detailed description, while 2% said they would like both, and 7% had no preference. It is evident that, while many people have definite opinions on grade labeling, they do not understand what grade labeling would give them, because they emphasized as most important in the checklist qualities for which the grade has no measure. Grades can only be established on some sort of a point grading system, with values for various qualities determined arbitrarily. It is interesting and significant that military and other governmental agencies—the biggest buyers in the country—do not rely on the A, B, C system of grading in making their purchases. Instead they buy according to a set of standards called "the federal specifications." These include detailed description of the products and set forth many factors omitted entirely in A, B, C grading.

A good descriptive label will have this kind of information in addition to that already required by law: (1) an up-to-date picture of the product reproduced as accurately as possible to give the right idea of color, size, and appearance; perhaps illustrating use; (2) detail about quantity—in addition to net contents required by law, number of portions, number of pieces, number of cupfuls, size of can, etc.; (3) a brief description of raw product, possibly with method of processing; (4) for some products, directions for use, with brief but specific instructions; possibly recipes; (5) specific information about the use of this particular quality of product; (6) brand name and other identification well and attractively displayed; (7) mention of recipe books or other available literature, when possible.

In our dual capacity as advisers to industry and advisers to homemakers, we [the Women's Committee of the Grocery Manufacturers of America, of which Esther Latzke is chairman and Mary I. Barber, Marye Dahnke, Elsie Stark, Rachel Reed, and Lillian B. Storms, among others, are members] are unanimous in our belief that good descriptive labels can provide the kind of information you want and need for discriminating selection of grocery products.—*Excerpts from The Inside Story, published by Grocery Manufacturers' Information Council, Grocery Manufacturers of America, Inc.*

What's *outstanding* about CARNATION MILK ?

All brands of evaporated milk must conform to the same government standards of butterfat and total milk solids.

Yet many physicians are convinced that their best results, in infant feeding and in special-diet management, are obtained with *one* brand of evaporated milk—the brand available everywhere —*Carnation.*

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Book Reviews

What to Do About Vitamins. By Roger J. Williams. Norman, Oklahoma; University of Oklahoma Press, 1945. Cloth. Pp. 56. Price $1.

If it were possible to set up "U. S. grades and standards" for books on nutrition so that the buyer might easily determine whether he was getting his money's worth, there is no doubt that *What to Do About Vitamins* would bear a large "Grade A" on its jacket. This reviewer, after having picked it up to read the Preface and glance through the table of contents, an hour later reluctantly set the book down, having read the entire text from Preface to Appendix, and furthermore having "metered" breakfast according to the directions in the book and been forcefully reminded that we should have eaten that bowl of cereal.

The very simply worded presentation of the needed and really useful facts about nutrition in general and vitamins in particular is the quality which makes this book outstanding. The very fact that each sentence is so aptly phrased means that the vocabulary was scrupulously selected, and the author has succeeded in one of the most difficult tasks of scientific writing—that of presenting technical information to the layman. Efforts in this direction so often result in sloppy phrasing which could be interpreted in many ways—largely erroneous. The authoritativeness of the book is, of course, not open to question. Dr. Williams' work, which includes the discovery of pantothenic acid, is well known to dietitians.

Admittedly, the figurative use of the term *lubricants* in contradistinction to *fuel* in discussing the needs of the human machine may rouse dissent. A few excerpts from the text will illustrate the manner in which the simile is used and the style of writing: "When we attempt to run an automobile without a supply of oil in the crankcase, the results are familiar. At first all goes well—as long as some oil remains—but eventually the engine overheats and may literally tear itself to pieces . . . . When a person eats food that is definitely incomplete in its make-up, does he drop dead? Not at all. Neither does an automobile engine stop running (unfortunately) the moment the oil pressure begins to get low. As adults, our bodies have great reserves of lubricants and if we slip up on our choice of food for a few meals, we certainly do not suffer a dramatic collapse. Our ability to get along temporarily on incomplete food gives us a false sense of security and blinds us to the fact that, *in the long run*, what we eat does make a difference. In an automobile we have an indicator needle that warns us when the oil pressure is below normal. In our bodies we have no warning device, save a good-for-nothing feeling. Unless we are far from well, there are no devices or means at present by which a physician can look us over and tell us that we are running low on this or that lubricant. He may make an intelligent guess and prescribe a mineral or vitamin preparation, but he has no way of being sure, unless the condition is far advanced. . . . If you decide to play safe by eating a reasonably good diet and by supplementing it with vitamins and minerals at the drug store, you should be sure you are getting the various lubricants in amounts that are worth paying for. You should not be misled by "units," "gammas," or "micrograms" (the latter two are the same and mean 1/1000 milligram) and assume that you are getting something when you are only getting a trace. For reasons which we won't discuss here, amounts of "vitamin A" and "vitamin D" cannot well be expressed in milligrams. Amounts of all the others can be, and there is no reason to talk in terms other than milligrams, except in these two cases. If your druggist won't tell you the amounts of the others in milligrams, you had better shift your trade to another store."

The device contrived by the author for helping students or lay readers to measure their own diets is stimulating and really simple to follow. In fact, we see no reason why this, coupled with the unusually lucid and interesting style, would not make the book an ideal text in nutrition classes for young people and adults.

Flavor. By E. C. Crocker. New York: McGraw-Hill Book Company, Inc., 1945. Cloth. Illustrated. Pp. 172. Price $2.50.

The author states that *Flavor* was inspired by the request of a soup manufacturer for a list of books to serve as the nucleus of a library on flavor. In this work, the sensation of flavor is first broken down into its sensory elements, and each of these is discussed in turn. The physical means for stimulating or repressing the respective sensory factors to attain the desired flavor objective are also explained. The chemistry of flavoring agents and condiments and the means for developing and retaining them in processed foods are discussed. Finally, methods for the prevention of undesirable or off-flavors in commercial products and for the discovery and correction of such as may occur are outlined. The book is intended to direct and stimulate the thought of food technologists, a term which includes all those who plan, cook, and process food or beverage, as well as those who are interested in flavor for its own sake. Although this volume provides information about flavors and flavoring agents and methods of using them, it is not a recipe or formula compendium.

Every dietitian, especially those engaged in research pertaining to food preparation, may read this book with profit. A few chapter titles will indicate the book's scope: the physiology of flavor perception, psychology in flavor, the language of flavor, significant elements in popular flavors, essential oils of flavor interest, influences of processing on flavor, flavor changes on storage, consumer-testing of foods, the art of the chef, and commercial quality scoring.

The following excerpts from the book are fair samples: "Even color may be associated with flavor. A red mint candy, for instance, seems entirely out of place, whereas pale-green is appropriate. A person's reactions toward flavors are exceedingly characteristic and natural. A conservative person tends to be conservative in what he likes in flavors, and a reckless, daring person, the opposite. Likewise, one who demands variety and frequent change in other respects tends to do so with flavors. Those who are ascetic in character refuse to enjoy flavors; others who are more sensuous indulge the palate accordingly. Gastronomes, or food-conscious people, seem to fall into classes according to their adjustment to life. Some folks eat for eating's own sake and others to compensate themselves by the delights of the table for some serious lack of satisfaction obtained in other directions. Many go in for sheer quantity of good things. These are the gourmands, who stuff as though the pleasure of the day is all they expect to have. Others combine restraint with enjoyment. These are the gourmets, who enjoy not only the journey but also the prospect of the destination.

"Perhaps the original function of flavor was to protect the individual in his choice of what was fit to eat. Flavor perception and reaction operate at a low, nearly automatic level of the mind and are well adapted for such protective function. There is only one truly natural food—the milk of one's own species—and even that is natural only in infancy. Even at that age all other foods are selected from available materials. The flesh of most animals is safe and good to eat, and our ancestors used it freely. For both animal and vegetable foods, one is accustomed to particular identifying flavors. As one develops discrimination, shape, color, texture, and even particular packs and trade names are added to the identification clues. Only the familiar is freely acceptable to most people."

Implications of Nutrition and Public Health in the Postwar Period. Privately published by the Children's Fund of Michigan, 660 Frederick Street, Detroit, 1945. No price stated.

This collection of addresses by eminent physicians and research workers comprises the proceedings of a conference held at Detroit, November 3, 1944, under the sponsorship of the Research Laboratory of the Children's Fund of Michigan. Listed in the contents are the following subjects and speakers: Food Production for Better Health and Longer Life, L. A. Maynard; Vitamins and the Health of the Nation, Charles G. King; Role of Food Technology in Improving Nutrition, Roy C. Newton; Research and Nutrition for Human Health, Frederick F. Tisdall; Maintaining Dental Health, Philip C. Jeans; Importance of Proteins in Resistance to Infection, Paul R. Cannon; Nutritional Reconditioning of Children in Occupied Countries, Harold C. Stuart; Our National Diet and Future Health, E. V. McCollum; International Implications of Freedom From Want of Food, Frank G. Boudreau; and Protein Deficiencies in Man, L. Emmett Holt, Jr.

A number of illustrations and graphs add interest to the book.

Standard Recipes for Industrial Cafeterias. Prepared for Industrial Welfare Division, Department of Labour and National Service, Nicholas Building, 37 Swanston St., Melbourne, Australia. Paperboard. Pp. 119. Price 10s.

This manual is in reality a quantity food service handbook, for it includes not only recipes but "general remarks on the subject of industrial catering and cafeteria service, based on experience gained in the wartime operation of food services in factories of all sizes in all parts of Australia." The latter include: precise directions for care and use of equipment, with chart showing

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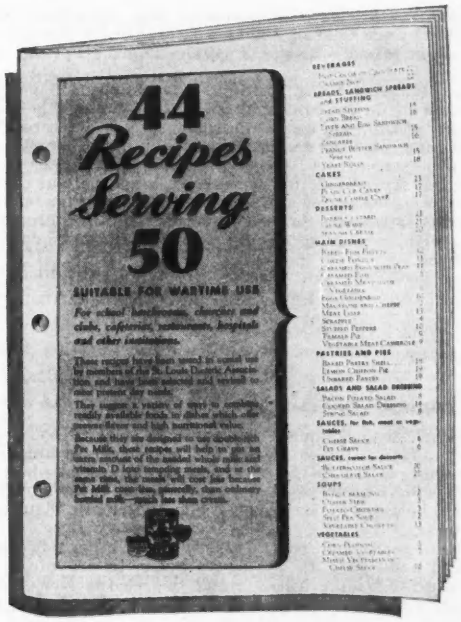

Here is a collection of tested recipes for a variety of delicious, wholesome dishes to serve 50 people. Every recipe makes the best use of foods now available. Every recipe has been tested in actual use by members of the St. Louis Dietetic Association.

Dietitians teaching quantity cookery will find these recipes a great help because the directions are simple and easy to follow, and each recipe includes the number and size of servings.

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method of cooking various meats and vegetables in "live-steam" cooker; use of utensils; sandwich making; salad making; soup making; preparation of vegetables; step-by-step rules for making pastries; etc. etc. All of these instructions are clearly stated and are inserted in the proper places throughout the book, just preceding each set of recipes. In addition, there are instructions for menu making and four "Guide Menu Sets" each covering one week. Nine pages are devoted to large illustrations of salad plates, including the Oslo lunch, with list of ingredients and directions for serving, all of which are available separately for posting in salad units (price 5d. per set).

The recipes themselves, of which there are over 200, are set up in orthodox fashion, with numbered steps. A few interesting dishes, selected at random, are: Cornish roll, treacle sponge, Blackfellow's plum pudding, trifle, brawn, royal scallop (casserole of hard-boiled eggs and rabbit meat), cheese scones, hamburger pies, bubble and squeak (fried mixed vegetables and bacon), and Shropshire toast. A section of recipes for special diets is added at the end.

The entire manual is a fine example of the kind of really helpful material on industrial feeding which can be produced under government supervision when the preparation is delegated to competent persons. Even though this manual stresses some foods not generally available or popular here, it contains sufficient information of general interest to be of value to food service directors in this country.

Cafeteria Supervision. By Kathryne S. Marston. Stamford, Conn.: The Dahls, 1945. Paper. Pp. 48. Price 50 cents.

The 48 pages of this small (4 x 6 in.) booklet contain 13 chapters into which are condensed essential points in successful cafeteria supervision. Subjects covered include: cafeteria supervision, managerial chart, qualifications for supervisors, rules for employees, sanitary inspections, accident prevention, organization chart, and job schedules. According to the publishers, Miss Marston, as cafeteria manager at the Pentagon Building in Arlington, made such a good record that she was promoted to a post as adviser to managers of other cafeterias operated by the Welfare and Recreation Association.

Wartime Food for Four Income Levels. By Ruth Okey and Edith J. Linford. Issued by the Heller Committee for Research in Social Economics, University of California. Berkeley: University of California Press, 1945. Paper. Pp. 53. Price 35 cents.

Prices and ration point values of the 1945 budgets included in the present revision are those of San Francisco for March 1945. The Introduction discusses the effects of changes in ration allowances on both the white-collar worker's budget and that of the wage earner. Nutritive values of all food budgets are sufficiently high *when purchased* to meet N.R.C. standards of 1941, and wastage of nutrients in preparation of food must therefore be avoided, the authors stress.

A Nutrition Program for the Elementary Schools of Youngstown, Ohio. Prepared by Edna Gilbert, Director of Lunchrooms, Board of Education, Youngstown, Ohio, 1943. Pp. 54. No price stated.

According to the Foreword, numerous requests for help with nutrition teaching have come to the supervisor of elementary schools, the director of lunchrooms, and others interested in furthering nutrition education among children. This demand is especially urgent because nutritionists cannot possibly reach all sections of the schools, and must depend upon the assistance of a large number of people less well trained in nutrition. In preparing this manual, use was made principally of materials prepared by and for the state and United States Offices of Education, the American Dietetic Association, departments of public health, Federal Security Agency, and the American Red Cross. The manual describes some of the learning experiences which should be effective in an all-around nutrition course for children. It is believed the educational principles herein given can be applied in teaching any group of children from 8 to 15 years of age.

The Nurse and the Law. By Gene Harrison, R. N. Philadelphia: F. A. Davis Company, 1945. Cloth. Pp. 353. Price $3.

This is a compilation of legal precedents, for the benefit of the nurse, who is obliged to keep to the course between "criminal negligence" and "practicing medicine without a license," together with a general discussion of the aspects of the law with which a nurse should be familiar, and ending with a description of the rights and privileges of the Army, Navy, and civil service nurses.

Menu and Recipe Suggestions to Cope With Food Shortages. Prepared by the Educational Department of the National Restaurant Association, Chicago 3, 1945. Paper. Pp. 19. Price 25 cents.

This contains many excellent suggestions for point-free or point-low menu combinations that would be very helpful to the manager of the food service in restaurant or cafeteria or for use in planning selective menus for the hospital patient. Listed are luncheon entrées for a 10-day period and dinner entrées for a week with meat served but four times a week and only at dinner. Included are meat-saving and sugar-saving recipes for such interesting items as cottage cheese croquettes and a mushroom and egg entrée with corn bread topping. Some of the menu combinations are priced.

Developing New Crops in Tropical America

The Middle Americas are fast becoming the food laboratory of the world. In realization of this, the United Fruit Company recently established a Department of New Crops. The department has as its unfettered function the investigation of every possibility in the development of new crops. It is to learn what new products can be raised economically and marketed advantageously in the interest of Middle American agriculture, the people of Middle America, and consumers wherever they may profitably be reached. Promising results of experimental plantings on a 2000-mile stretch from Honduras to Ecuador are already visible. Superior productivity of Middle American soil, shorter lines of transport to American markets, and application of advanced scientific technology are the factors which favor agriculture in our own tropics.

To grow the new crops successfully and to maintain the old ones will require more and more technical knowledge. As one response to the need, Escuela Agricola Panamericana—the School of Pan-American Agriculture—which was formally opened October 12, 1944, has come into being. Early in 1942 the National Congress of Honduras authorized establishment of such a school in the beautiful Zamorano valley, 25 miles from the Honduran capital of Tegucigalpa, on lands purchased by the United Fruit Company.

Modern tropical agriculture is a major undertaking. To conduct it on a scale adequate to grow and transport food products to great markets, to pay good wages, to banish deadly human disease, to conduct research in the never ending war against plant enemies, to carve new land from jungles and swamps, to develop new crops for the betterment of farmers big and small, requires sizable enterprise.

The great tropical crops that grow on the other side of the world can and must grow in our own tropics, to provide a balanced economy for Middle America and to free the New World from dependence on the East for strategic materials.

The economic and social evils of a one- or two-crop economy must not be fastened on Middle America. The lessons of World War II point to the path of agricultural variety and abundance, not only in cash crops which the farmers of Middle America can sell, but in subsistence crops for their own food, freeing them in considerable degree from the worst effects of fluctuations in world markets. Should the price of palm oil drop, those same plants can furnish rich edible fats which the farmer can eat until the market is restored. So it can be with other crops.—*Zemurray, S., and Terry, J.: New Crops for the New World. Atlantic Monthly, January 1945.*

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Accordingly—and thanks to research already performed with this end in view—the makers of Nucoa have adopted this new level of Vitamin A fortification, guaranteed in every pound of Nucoa, winter and summer.

The dependable quality of Nucoa's texture, Vitamin A potency, flavor and freshness have always recommended it to both nutritionists and homemakers. It is America's largest-selling margarine. For Nucoa is made with the benefit of research and strict daily control*** of one of the best equipped and staffed food laboratories in the world, with a consulting group of specialists in nutrition. And Nucoa is freshly made the year round, on order only. There is no "storage" Nucoa.

**Federal Register, June 7, 1941, page 2762*
***Release, July 2, 1945, Agricultural Research Administration, U. S. Department of Agriculture*
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Current Literature

Contributed by the Journal Staff, and Quindara Oliver Dodge, School of Home Economics, Simmons College, and Women's Educational and Industrial Union, Boston.

AMERICAN JOURNAL OF DISEASES OF CHILDREN

Vol. 69, April 1945

*Celiac syndrome. Fecal excretion in congenital pancreatic deficiency at various ages and with various diets, with discussion of optimal diet. D. H. Andersen.—p. 221.

Celiac Syndrome. An optimum diet for pancreatic-deficient patients was the aim of this study. Preliminary observations included studies on fecal fat of patients with pancreatic deficiency receiving a normal diet, effect on fecal fat of the reduction of dietary fat and oral administration of pancreatin, and effect of various diets on excretion of carbohydrate, fat, and protein. Several constant diets were run with changes made in kinds of fats, sugars, and proteins to determine effect. Although not enough extensive studies have been made, it would appear that the optimal diet is probably similar to that given celiacs with the exception of the form of carbohydrate. Protein should provide 25% of calories, with the level of fat low, the carbohydrate high and a portion of it given as cooked cereal, potato and sugar. Total calories ought to be high enough to satisfy hunger and allow gain in weight. In addition, pancreatin and vitamins A and D should be administered.

ANNALS OF INTERNAL MEDICINE

Vol. 22, May 1945

*Clinical use of new types of modified protamine zinc insulin. R. S. del Fierro and E. L. Sevringhaus.—p. 667.

*Duodenal ulcer with perforation following a cutaneous burn. V. W. Koch and W. A. Fischer.—p. 719.

Protamine Insulin. Modified protamine zinc insulin has brought better results than any other type of insulin for the moderate to severe diabetic. Smaller doses have given better postprandial and nocturnal control of both glycemia and glycosuria as well as freedom from frequent hypoglycemic reactions. During an experimental period ambulatory patients were maintained on the same diet and took the same amount of exercise daily. Best results have been obtained with modified protamine zinc insulin, compared with any single dose insulin.

Ulcer Following Cutaneous Burn. Ulceration of a part of the duodenum following a severe burn has been called "Curling's ulcer." Incidence is high in the early teen age group. Ulcers occur at any time following a burn—generally between 2 and 17 days thereafter. Several theories are advanced as to the cause but no well-defined conclusions are drawn as to etiology.

ARCHIVES OF INTERNAL MEDICINE

Vol. 75, May 1945

*Effects of some liver extracts on the carbohydrate metabolism. H. B. Sokol.—p. 324.

*Effects of some liver extracts on the carbohydrate metabolism. J. E. Sokol.—p. 329.

Effect of Liver Extract on Carbohydrate Metabolism. Before the discovery of insulin, claims were being made that liver and liver extract influenced carbohydrate metabolism. This paper reports on 17 pernicious anemia patients treated with liver extract for various lengths of time. All except six showed hyperglycemia and glycosuria to some degree, indicating a glycogenolytic substance must be present in the extract; some of these patients became permanent diabetics. It would seem, then, that all liver preparations should be tested for the diabetogenic factor before being used; all anemia patients treated with extract ought to have regular blood sugar tests.

Liver Extract. A review of the literature on various extracts and carbohydrate metabolism, with comments and discussion and suggestions for further investigation.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 128, June 2, 1945

*Incidence of rat bites and rat bite fever in Baltimore. C. P. Richter.—p. 324.

*Nutrition in pregnancy. C. J. Lund.—p. 344.

*The importance of proteins in resistance to infection. P. R. Cannon.—p. 360.

Vol. 128, June 9, 1945

*Insulin mixtures in the treatment of diabetes. D. Adlersberg and H. Dolger.—p. 414.

*The clinical detection of protein deficiency. J. B. Youmans.—p. 439.

*Gamma globulins. Editorial.—p. 442.

*Flies, food and poliomyelitis. Editorial.—p. 442.

Vol. 128, June 16, 1945

*The fluid and nutritional therapy of burns. H. N. Harkins, O. Cope, E. I. Evans, R. A. Phillips and D. W. Richards, Jr.—p. 475.

*Anemia in pregnancy. A correlation of the peripheral blood and bone marrow findings. J. R. Wolff and L. R. Limarzi.—p. 482.

Vol. 128, June 23, 1945

*Selection of protein containing foods to meet protein requirements. D. F. Turner.—p. 590.

*Nutrition and cancer. Editorial.—p. 594.

*Vitamin C in hay fever. Current Comment.—p. 595.

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Rat Bites. Wild rats, even more than any domesticated animals, enjoy very intimate living arrangements with man. They can live in the same house, share the same beds, eat the same foods, carry the same internal and external parasites, suffer from the same diseases and plagues. Man has made numerous unsuccessful efforts to terminate this close relationship and has at all times manifested a great distaste for any physical contact with these companions, either dead or alive. Rats on the other hand are less discriminating, even seeking contact with man and treating him much as they do the dying or dead members of their own species—running over him, licking him, biting and finally trying to eat him.

Nutrition in Pregnancy. "Few fields of medicine are moving forward as rapidly as the field of nutrition. Certainly few offer greater opportunity for scientific research and its application to the problems of nutrition and health. . . . Much exaggeration has come from those exploiting the vitamins, some from pseudoscientific food faddists and some from studies inadequately controlled with unwarranted emphasis placed on single case reports. These unfortunate exaggerations have stimulated the enthusiast and have provoked distrust in the conservative. These and other reasons make it fitting to review discriminately some of the facts and fallacies of nutrition as it concerns the pregnant woman." It is clear that the normally healthy, pregnant woman requires more dietary essentials than the similar nonpregnant woman. The exact extent of this increase is not known for any substance, but approximate values have been reasonably well established. Under ordinary conditions these needs can and should be met by diet alone. For optimal supply the daily diet should consist of one generous serving of meat (including liver weekly), a quart of milk, an ounce of butter, one fresh vegetable, one green leafy vegetable and one other cooked vegetable, generous amounts of citrus fruits or their equivalent, an egg, and whole grain or enriched bread. Beyond this, supplements are unnecessary except possibly 5000 I.U. vitamin A during the second trimester and 10,000 I.U. during the last trimester. Administration of vitamin K to the mother in labor or to the newly born infant is probably justified. Gross deficiencies of diet undoubtedly influence unfavorably the course of pregnancy and the health of the new born infant. An excellent diet favors a successful course and termination of pregnancy. Complications of pregnancy probably exert a greater influence on nutrition than does nutrition on them. Such conditions as hy-

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peremesis gravidarum, pyelitis of pregnancy and puerperal infection and other acute and chronic infections may produce nutritional deficiencies. These are conditions which frequently require dietary supplements, sometimes in large amounts.

Proteins in Resistance to Infections. In the past few years much evidence has accumulated indicating the basic importance of protein metabolism in relation to the processes of natural and acquired resistance. This evidence points more and more to the conclusion also that many important aspects of the problem of infection and resistance are essentially nutritional.

Diabetes. A review of 1131 diabetic patients in a large general hospital revealed that 46% were controlled with diet alone, while 54% required insulin. In the insulin group 79% were satisfactorily maintained by one daily injection of protamine zinc insulin, 5% by one to three injections of regular insulin, 3% by one injection of globin insulin, and 13% by mixtures of regular and protamine zinc insulin. Of the 80 patients using mixtures, 44% were on "equal" mixtures, 35% on "surplus protamine" and 21% on "surplus regular" mixtures. Mixtures present a decided advance in the treatment of severe diabetes. The chief advantages of mixtures are flexibility and adaptability to the requirements of the individual. The use of a single stock mixture in fixed proportions for the treatment of diabetes is not recommended at present.

Protein Deficiency. "When considering the diagnosis of protein deficiency, distinction must be made between a deficiency of protein in the diet and the physical state of a deficiency of protein in the body. They are not the same and, although a history of a dietary deficiency may be helpful in the diagnosis of protein deficiency disease, unless the dietary has been inadequate greatly enough and long enough to exhaust the reserve stores such inadequacy is not of itself sufficient for a diagnosis of protein deficiency." Distinction must also be made between a deficiency of protein as protein and a deficiency of amino acids. Some ten of the many amino acids found in protein have essential specific functions, yet cannot be synthesized by the body. Hence there may occur specific amino acid deficiencies. A deficiency of protein is often accompanied by a deficiency of specific amino acids, but there can be and often is a deficiency of protein as protein, distinct from any deficiency of specific amino acids.

The history and study of the diet, though not diagnostic, are very useful, and knowledge of a possibly inadequate intake should always suggest that protein deficiency exists. Inquiry into the diet should be made with some care because even small deficits existing over a long time can cause a deficiency state in the end.

Of almost greater importance in some cases than the actual amounts of protein is the caloric intake. This is because protein is burned for heat in the absence of sufficient fat and carbohydrates to supply energy requirements. Actually, healthy adults, if given sufficient fat and carbohydrates to supply all energy needs, require only small amounts of protein. "The physician has recourse to a number of procedures for determining the nutritional status with respect to protein sufficiency, but the dietary history is all important."

Gamma Globulins. The war caused an increased demand for blood and blood substitutes to combat battle wounds and shock. At first whole blood, because of its instability and type characteristics, did not seem to meet the requirements necessary for most efficient military application. Dried plasma was evolved, and a purified concentrated solution of the albumin fraction of plasma. The albumins are formed in the liver, but until recently the origin of the globulins remained uncertain. It appears that the gamma globulins are formed in the lymphoid tissue. The role of gamma globulins in medical practice promises to be increasingly important, depending on the isolation and production of purified preparations.

Flies, Food, and Poliomyelitis. Food exposed to flies in the homes of poliomyelitis patients in an epidemic area may acquire a quantity of poliomyelitis virus sufficient to produce in chimpanzees, by oral administration, a nonparalytic infection of asymptomatic carrier state. The evidence already accumulated this year indicates that poliomyelitis may be as widespread as in 1944. The efficiency of D.D.T. in controlling flies may demand its use on a large scale when an epidemic of infantile paraylsis threatens.

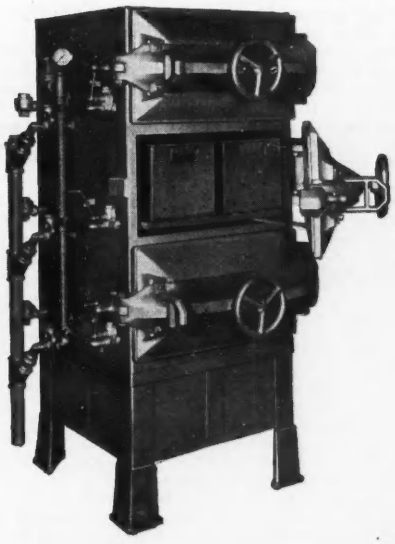
Treatment of Burns. "The immensely important problem of feeding during the often protracted period of infection and anemia cannot be adequately covered in this memorandum. Each case is an individual problem of dietetics and nursing. A full food intake, including calories, vitamins, and especially protein, is essential." Total fluid intake should be sufficient to keep the urine volume 1500 c.c. or higher daily. If salt intake has been adequate, body proteins not too much depleted and heart and kidney function competent, this usually means an intake of between 3000 and 4000 c.c. daily. Salt intake should be maintained around 10 gm. daily; a little higher if the burn is extensive with much exudate. Too much salt, however, promotes general tissue edema. Diet should be high in protein, carbohydrate, calories, and vitamins. The protein intake should be added to with increasing areas of third degree burns as early as possible after the injury and probably by the end of the first week. Such protein intake should be of the following magnitudes: 5 to 10% body surface burned, 125 gm. protein per day; 10 to 20% of body surface burned, 125 to 200 gm. protein per day; more than 20% body surface burned, more than 200 to 300 gm. protein per day, provided the patient's gastro-intestinal tract can tolerate these large amounts. The corresponding caloric intake should approximate 3000, 4000, or 5000 calories per day. Amino acids by mouth, 100 to 200 gm. per day, are an effective form of protein intake but difficult to tolerate because of the bad taste. Few patients can take them for more than 3 or 4 days. Adequate vitamins and iron are essential in all unhealed burns. A suggested daily dosage is as follows for burns of 20% area of third degree, with correspondingly smaller doses for less severe burns: vitamin A 20,000 units, vitamin B—thiamin hydrochloride 40 mg., riboflavin 20 mg., niacin amide 50 mg., vitamin C 1 gm., vitamin D 2000 units, vitamin K 1 mg., ferrous sulfate 1.5 gm.

Anemia in Pregnancy. Four types of bone marrow and peripheral blood patterns are observed during pregnancy: a normocytic normochromic anemia in the peripheral blood; a microcytic hypochromic anemia with a normoblastic hyperplasia in the bone marrow in which adequate iron therapy corrects the bone marrow and the anemia; a macrocytic anemia with a normal or pronormoblastic bone marrow; a megaloblastic type of bone marrow with either a macrocytic, normocytic, or microcytic and hypochromic peripheral blood pattern in which adequate liver therapy and supportive blood transfusions are needed to carry the patient through the pregnancy.

Protein Requirements. "In planning a dietary regimen appropriate in protein content for different health and socio-economic conditions, several factors must be considered. Some evaluation must be made of the nutritive efficiency of proteins in a mixed dietary; selections must be made of the proper kind and amount of protein-containing foods which may be used for various dietary prescriptions; and, finally, adaptations will have to be made to correspond with the patient's food habits, income and rationing allowances." A procedure especially useful to the general practitioner is then outlined whereby it will be possible to make up a dietary appropriate for each individual patient by making simple adaptations of a basic pattern of food intake.

The various methods of determining the relative values indicate that proteins of animal origin are superior in nutritive efficiency to most vegetable proteins. Furthermore, while these animal proteins are much alike in the value of their proteins, the same is not true of the vegetable proteins. In spite of the lower biologic value of legumes and grains, it is well known that, when combined together in the diet, mutually supplementary relationships exist. It is recognized, too, that a relatively small amount of animal protein will considerably enhance the value of the grains and legumes. In a study of the biologic value of mixed proteins in food served at Royal Air Force stations in England, the protein consumed per man daily varied from 83 to 101 gm., and the proportion of the protein which was animal in origin, from 42 to 45%. The diets had a high biologic value and a high degree of digestibility. It would appear that current dietetic practice, that of providing one half the protein from animal sources, will ensure a satisfactory factor of safety when the level of protein intake is that recommended by the Food and Nutrition Board of the National Research Council for the adult maintenance diet. In therapeutic diets, and in diets in which growth is a factor, it is a common practice to provide one half to two thirds of the protein from animal sources. The actual combining of protein-containing foods into patterns of food intake may be organized most simply by noting the relative amounts of protein contributed by various food groups in a basic dietary pattern. From this basic plan it will then be possible to make adaptations in the protein intake suitable for various dietary prescriptions. An example of such a basic plan is presented. Considerable elasticity is possible in the selection of protein foods from the basic pattern. Adaptations can be made suitable for the normal adult woman and the pregnant and lactating woman, and for the needs of children and for high-protein diets. Only a few examples are given "since a specific dietary prescription will need to be integrated with the individual patient's food habits and his social and economic problems."

The author includes such useful suggestions as: "When the patient is not accustomed to drinking milk, it may be desirable to provide suggestions for the use of milk in soups, desserts or flavored beverages. The most inconspicuous and, in many cases, the most acceptable way in which to add milk is in the form of dried milk. Approximately 1½ oz. dried skim milk (defatted milk solids) will equal 1 pt. fluid milk. This dried milk may be incorporated as a dry ingredient in the preparation of meat loaf, mashed potatoes, sandwich spreads, cooked cereals, hot breads, cookies, pastries or puddings with little difficulty." Where cheese is substituted for milk, due attention must again be given in order



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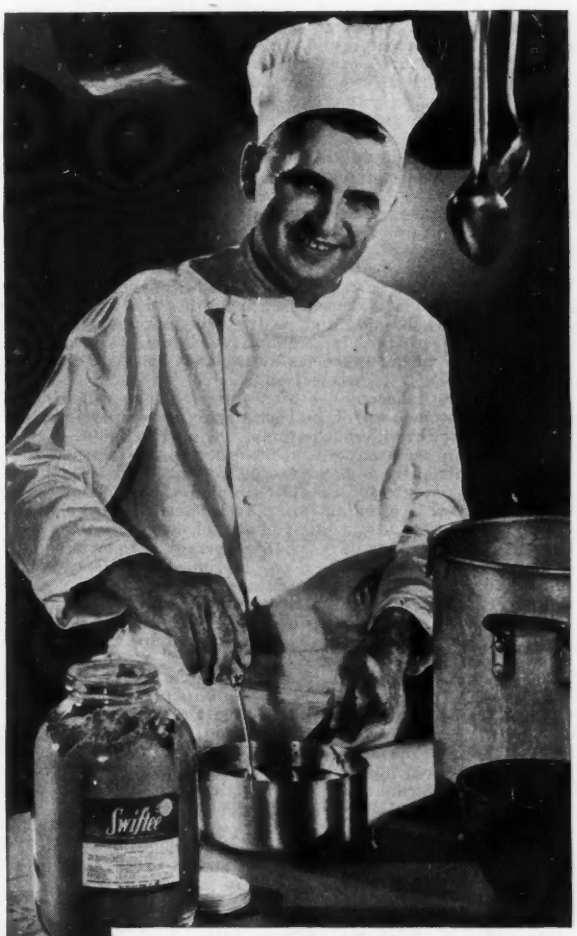

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to compensate for the large decrease in minerals and vitamins which would otherwise result. In this case the increased use of glandular meats and pork will be useful in augmenting these nutrients. Where milk or American Cheddar-type cheese is not tolerated it is unlikely that the calcium and phosphorous will be met with other foods. Further attention will then have to be given to compensate satisfactorily for the protein and for other nutrients provided in milk.

"Soybean flour is another mild flavored, low cost product which can be successfully incorporated in cooking. Tabulations of comparative digestibility coefficients, amino acid analyses and results of growth promoting animal feeding tests all contribute to the conclusion that the protein of the soybean is of high biologic value. Soybean products are generally available at the present time and can be used in such prepared foods as pancake and muffin mixes, cereal products, macaroni, and other paste goods, meat products, soups, breads, and pastry products. Approximately 500 tested recipes in both large quantity and family size have been collected from various agencies by the Diet Therapy Section of the American Dietetic Association.

"The patient's acceptance of protein foods to which he has not been accustomed will depend on satisfactory adaptations of the dietary plan to the different national, regional, religious or racial backgrounds of each patient. Furthermore, the instructions of the food clinician become increasingly effective as psychologic factors are taken into account in teaching nutrition. Behavior in relation to food is often an interplay between the physical and the emotional life. As in other phases of medicine, the patient must be considered as a 'whole' if the therapy is to be effective."

Nutrition and Cancer. In both experimental and spontaneous tumors the influence of energy intake, fat consumption per se, protein content of the diet and deficiency of certain vitamins have been shown to influence the course of development of the tumor. Some have even advocated ample exercise and a minimum food consumption as a measure for the prevention of human cancer. Diets which are deficient in protein also influence the occurrence and growth of tumors. There is a lowered incidence of spontaneous mammary tumors in mice on either a lysine or cystine-deficient diet. Studies have also shown that rats on diets deficient in biotin or pyridoxine show a decreased incidence of tumor formation. Morris concludes that the diets that seem to reduce the incidence of cancer are too drastic, even if they could be applied, to be of any practical value for the prevention of human cancer. Also the effect of exercise was not adequately investigated even in animals, so that definite conclusions cannot be drawn concerning its applicability to human cancer.

Vitamin C in Hay Fever. In view of published evidence, vitamin C therapy for hay fever and other allergic conditions may be considered useless and wasteful.

Penicillin as Food Preservative. In pasteurization of milk and nonpressure canning of fruits and vegetables all vegetative forms of bacteria are usually killed. The residual bacterial contaminants usually consist solely of heat-resistant spores. On germination these spores are the main source of toxins and other forms of food spoilage. Tests had shown that many aerobic spores remain latent for a long time without such heating. A measured amount of penicillin was added to each mixture and the mixture incubated at the optimum temperature for germination. At the end of 5 to 27 hours' incubation the residual penicillin was inactivated by the addition of penicillinase. The mixtures were then plated. The difference between the number of viable spores thus determined and the original spore count was taken as a measure of sporicidal activity. The extraordinary effectiveness of penicillin in low concentrations against bacterial spores, together with its nontoxic nature, suggests the use of penicillin in numerous nonmedical fields, including that of food preservation. Relatively inexpensive crude penicillin presumably would be satisfactory for such uses.

Amino Acids in Protein Nutrition. "Amino acids are to protein what glucose is to starch. In other words, they are the unit components of food and tissue protein. Their discovery, purification, and identification mark one of the milestones in the development of the science of nutrition. The isolation from foods of these specific chemical components which enter into the metabolic activities of the body represents the most important recent contribution of chemistry to the field of nutrition. Amino acids differ from vitamins in that they are more than catalysts or enzymes; they actually enter into the structure of body tissue. While they are thus used up like glucose, unlike the latter they are not burned as fuel unless calorigenic elements are absent, when they may act for glucose when the latter is not available." Amino acids are 21 or more in number, each different, though conforming to the same general chemical formula in that they contain an amino group and a carboxyl group. But 10 of them may be considered as "essential"—indispensable in that the body is unable to manufacture them from other amino acids or from simpler material and that they must be supplied before normal protein metabolism can occur. Each protein in the body as well as each protein in food has its own individual amino acid composition. By using amino acids instead of food protein the physician can administer protein nourishment in its simplest form just as he uses glucose. Like chemically pure glucose and vitamins, amino acids are available in crystalline form and may be purchased on the open market as such. They may then be combined in the desired proportions and given to the patient either by mouth or by injection just as in the case of crystalline vitamins or glucose. By means of an adequate digestion in vitro of natural proteins a mixture of amino acids may be easily obtained. The several methods for producing amino acids by the digestion of protein may be classified in general into enzymatic and acid hydrolysis methods. Whenever there is a failure in normal ingestion, digestion and absorption of food protein, inevitable deficiencies in protein begin to develop at once unless protein is supplied in some other way. Any patient who does not eat will develop a protein deficiency; any patient who eats but does not digest or absorb his food will likewise suffer protein starvation. Just as the universal use of solutions of glucose and saline obviates many of these deficiencies, the wider use of amino acids will prevent deficiencies in protein, which may be just as important as preventing deficiencies of water, electrolyte, and vitamins. As far as parenteral administration is concerned, it may be stated as a general proposition that when solutions of saline or glucose are injected for maintenance of daily needs, amino acids are indicated as well. Protein deficiencies are actually of frequent occurrence in clinical medicine, yet they are seldom recognized because physicians are apt to view an inadequate protein intake with complacency. While we have recognized the importance of supplying glucose and vitamins, water and salts, we have looked on other food (*e.g.*, protein) as being dispensable. We have been lulled into a false sense of security by the supposition that there are large stores of reserve body protein and that the absence of protein intake may result in little or no difficulty. Hypoproteinemia has now been demonstrated to be frequent in both medical and surgical wards of any hospital.

Specific indications for the clinical use of amino acids include: patients unable to ingest protein because of severe gastrointestinal disease or persistent vomiting from any other cause; patients suffering from advanced inanition; patients able to ingest protein but in inadequate amounts or who have difficulty with regard to digestion or absorption; and patients with allergy and intractable (especially bleeding) peptic ulcer. The use of amino acids by mouth is therapeutically desirable in that it avoids the necessity of protein digestion. However, the taste of some of the commercial preparations available at present is unpleasant and may be avoided by the use of tube feeding. Vitamin mixtures must be added to the amino acids fed by mouth. The parenteral administration of protein food by means of amino acids represents as great an advance in therapy as the injection of glucose to supply calories, water and electrolyte to maintain water balance and correct dehydration, or injection of crystalline vitamins to combat vitamin deficiencies.

Before undertaking the administration of amino acids by injection, the physician should determine as far as possible the amounts required and add to this the other nutritional requirements. This is an important consideration because each substance requires the presence of the others in order to be most completely effective. Water balance is often disturbed in protein deficiency; carbohydrate is needed for utilization of fat and protein; vitamins play an important part in carbohydrate and probably in protein utilization. The use of all these substances in appropriate amounts is therefore essential in planning such a parenteral diet. In planning the dose of parenteral fluids in each case it is of considerable value to distinguish between acute deficits and amounts required for maintenance. It should be emphasized, however, that any parenteral method is inconvenient, expensive, and not without danger and should be employed only when specifically indicated, only as much given as needed, and replaced as soon as possible by the normal oral route.

Amino Acids Parenterally. The more recent literature on the parenteral administration of amino acids (protein digests) reveals that only occasionally are mild to moderate reactions encountered. Furthermore, it has been demonstrated that these reactions will subside either on reduction of the rate of flow of the infusion or on discontinuance of its administration. Recently at the Wisconsin General Hospital, out of approximately 2000 parenteral administrations of amino acids, one patient developed a severe and bizarre reaction which terminated in death. Since it was impossible to prove unequivocally that death was due to amino acids per se rather than to some extraneous factor or factors, the stressing of any additional potential dangers of parenteral administration of amino acids other than those already known is not considered justified.

Milk Sickness. The once mysterious "milk sickness" for over a hundred years was a scourge among the many endemic ills which

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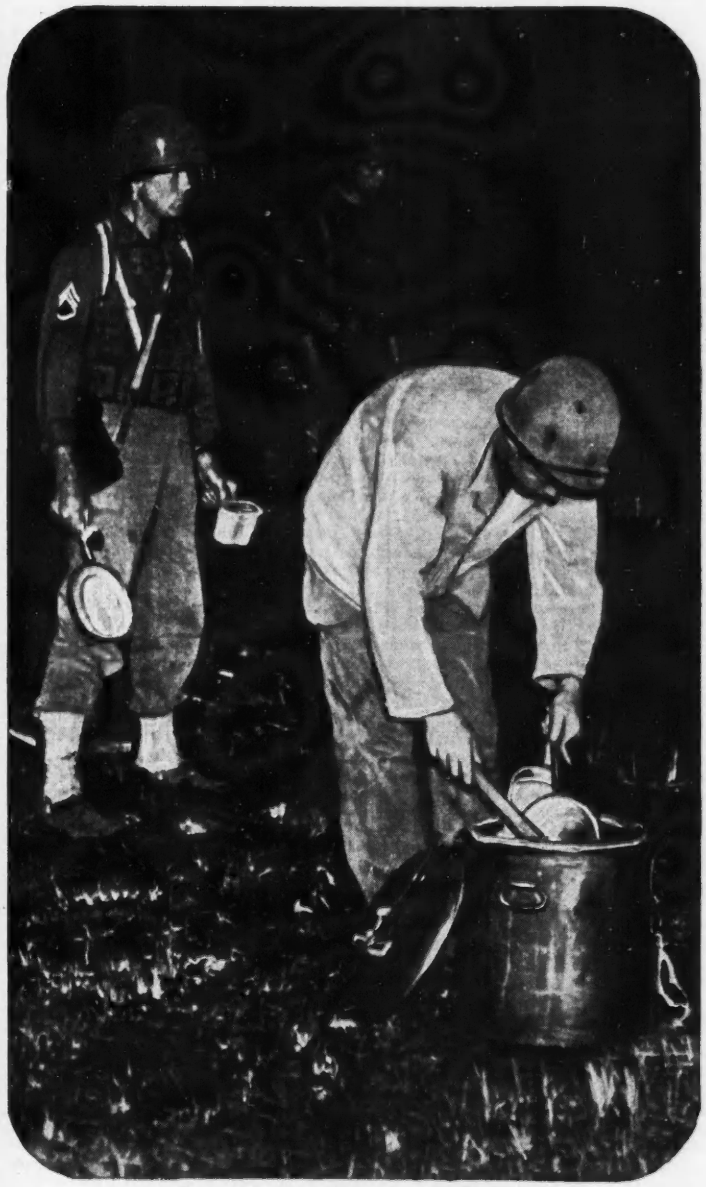

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beset early settlers throughout the Middle West. It affected cattle and man alike, and was variously designated as swamp sickness, tires, distemper or trembles. The symptoms, always incident to the drinking of milk, were dizziness, increasing lassitude, loss of appetite, nausea followed by vomiting, constipation, subnormal temperature, intense thirst, and the odor of acetone. In 1906 E. L. Moseley showed that snakeroot fed to animals in the laboratory will produce "trembles." Finally, in 1917 the U. S. Bureau of Animal Industry announced that a poisonous substance, tremetol, had been isolated from the white snakeroot; others confirmed this discovery, and a treatment was devised. A specific antidote for tremetol, however, has not thus far been discovered.

Longevity and Mental Decline. We gain mental stature quickly, particularly between 13 and 16 years, and lose it slowly. The ability to learn new facts reaches its maximum in the late teens and early twenties and then starts slowly declining. While there is a decrease in the amount of learning which persons acquire as they grow older, exceptional minds possess the ability to renew themselves continually and to exploit to the fullest their intellectual resources. From the point of view of the best interests of most older persons, a regular job is necessary and desirable. Retirement is inadvisable for many. It is fear of aging, rather than the aging process itself, which often causes a functional loss in the mental realm, just as it does in the physical. Admitting the inevitable deterioration of our abilities with advancing age, it would be well to remember that every handicap has two aspects: the handicap itself, and the way the handicap is used. It is generally conceded that the higher the original intellectual endowment, the slighter the decline. Judgment, better integration of knowledge, practice over a long period of years will compensate for losses in motor dexterity and sensory acuity of the young. Indiscriminate and arbitrary shelving of men and women merely for age results in great loss to society and the individual.

Poliomyelitis in Malta. In 1942 an epidemic of infantile paralysis began in Malta, reached its height in the latter part of December and was over by March 1, 1943. The outbreak included 483 paralytic cases, 425 in civilians and 57 in military servicemen. After thorough consideration of the circumstances, some of which are quite unusual, it seemed safe to conclude that the spread of the Malta epidemic was not promoted by the great overcrowding at that time, by the lack of food and vitamins, by possible contamination of food and water from the use of sewage for fertilizer or by the consumption of dried milk. As the epidemic developed rapidly at a time when flies were less numerous than at other seasons, "it is tolerably certain that the disease was not spread by flies." That the virus of the epidemic was an indigenous strain is indicated by the fact that a few sporadic cases of infantile paralysis have developed in Malta over many years, that civilians were attacked first, that the adult Maltese almost wholly escaped, and that there was no evidence of the virus being brought in by servicemen. The causal strain cannot have differed greatly from the normal strain, since its pathogenicity was confined to the more susceptible groups of the indigenous population, who presumably had not had time or opportunity to become completely protected by the normal process of latent infection. "Why did the disease assume the paralytic form? The virus is constantly with us, constantly infecting us, but only rarely getting through to attack the central nervous system. And the circumstances in which it loses its temper, so to speak, and gores us to the marrow we simply do not know."

Advanced Starvation. The conditions in German prison camps and in occupied countries have brought to the front the problem of the treatment of advanced starvation. As fasting continues there is a progressive diminution in the absorptive powers and protective functions of the intestinal mucosa. The columnar epithelium is progressively disorganized, exposing the intestine to irritation by undigested foods with resultant diarrhea. Parenteral feeding, by injection of amino acids to reconstruct the mucosa, is indicated. These should be used by the body as building materials but in starvation are apt to be broken down and used for energy. To protect them it is necessary to give glucose and B vitamins which enable the body to metabolize glucose. If the patient can swallow, digest, and absorb the requisite protein, this might be supplied in some suitable form, such as reconstituted dried skim milk powder by mouth or, if he could not swallow, by nasal tube feeding. But if he is unable to digest, protein hydrolysate should be given by mouth or by gavage and if he cannot swallow, digest or absorb, resort must be made to intravenous administration.

Margarine. "The experimentalists in nutrition have shown that margarine may be substituted for butter fat with impunity in regard to growth, reproduction, and lactation, provided the diet is nutritionally adequate. Of all the fat soluble vitamins, margarine is deficient in vitamin A, but this deficiency is made up by the fortification of the product with added vitamin A. This is a common procedure and most products on the market today are fortified in this way. The possibility of using margarine as a low cost fat may be of considerable importance in the feeding of the war seared population of Europe; it may also be used with safety in this country when a less costly edible fat is needed."

Posture. Physical medicine is a more correct term than physical therapy when such a subject as body mechanics is included. By body mechanics is meant both the static and the functional relationship between the parts that make up the body, and the body as a whole. The study of body mechanics is of as much value in prevention as in the cure of pathologic conditions of the body. Our body build is largely inherited, just as the shape of our features. Our features cannot be changed, and neither can our body build. However, the interrelations of the 200 bones or more which are joined together by ligaments and acted on by muscles are subject to the same mechanical laws and forces which control any other machine. The maintenance of body function, of health, of life itself is concerned with balance between antagonistic forces. Balance is the motivating force in good posture. When this balance is disturbed by fatigue, accidents, disease or occupation, the efficiency of the body as a machine is lowered. It may be said that physical laws applied to our body mechanics give the answer to the question if posture is related to physical health. Even mental health is affected by posture. Our sense of well-being and our emotions are often mirrored in our posture. The spine being the main support of the viscera, it is evident that the change to an erect position will affect the organs concerned with the maintenance of nutrition. If several rings are held on a horizontal stick they will hang free from one another, but if the stick is brought to a vertical position the rings will crowd on one another at the lowest point. This is what takes place, to some extent, in the change from a quadruped to a biped posture. The causes of poor body mechanics may be considered under overactivity, insufficient or improper food, weakness against gravity and inherited or acquired faulty positions or movements. We cannot expect function of the body unless properly supplied with carbohydrates for energy, protein for repair, and fat for insulation, minerals, vitamins, and so on. The mechanical efficiency of the human body corresponds very well with a machine. In untrained men it is about 20 per cent, in trained men 25 per cent, and in outstanding athletes 33 to 41 per cent. The question of posture standards is not satisfactorily solved, but a certain amount of literature can be obtained from the Children's Bureau, Department of Labor, Washington, D. C. Men in the armed forces today show the carriage and alertness of efficiency after even a short training period.

Fashions in Pediatrics. Under the heading "pseudodoxia pediatrica" Bakwin calls attention to a number of doubtful practices in current use among pediatricians. Among many fallacies resulting principally from rationalization without scientific check, those pertaining to the field of nutrition offer a fruitful field. Infants are fed vitamins, although there is not definite clinical evidence that deficiency diseases are common among children or that any benefit can be derived from the general use of vitamins except in the case of vitamins C and D in infancy. The major fallacy is to think that the appetite cannot be trusted in the selection of a proper diet and that laboratory investigations have progressed to the stage where they can be trusted to make such a selection. Bakwin insists that eating should mean roasts, sauces, puddings or pies rather than calories, vitamins and minerals, and that if he was to choose between chef and dietitian he would choose the chef. The tendency is to accept ideas rather than to question them and subject them to experiment and clinical control. The indifference of the academic pediatrician to the details of everyday practice, the type of training given to the future pediatrician and his orientation toward his practice are all factors. The physician often feels that he must do something; in his anxiety to act he frequently does too much to the detriment of both child and parent.

Book Reviews. The criteria by which the contents of reviews were judged follow: discussion of author's qualifications and basis of his work; indication of whether the book is a reference book, textbook or manual; indication of the author's purpose in writing the book, his objectives and point of view; inclusion of subject matter covered, as well as scope of book; format, type, illustrations, plates and bibliographies; indication of manner of treatment, style of writing and effectiveness; indication of the accuracy of the author's statements; and inclusion of comparison with related books in the field or similar books by the same author.

Intelligence and Sex. There is no difference in mean intelligence between boys and girls. There is, however, a real, *i.e.* statistically valid, difference in the degree of variance of intelligence between boys and girls, which increases as one approaches the extremes of intelligence. The difference "is almost certainly genetic, but in what manner this is brought about is at present completely obscured."

JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 158, May 1945

*Growth inhibition by analogues of pantothenic acid. Pantothenyl alcohol and related compounds. E. E. Snell and W. Shive.—p. 551.

DELICIOUS

MEAT BASE VEGETABLE SOUP

in only 30 minutes

INGREDIENTS	15 SERVINGS	96 SERVINGS
Potatoes, cubed	3 cups	4½ qt.
Cabbage, shredded	3 cups	4½ qt.
Carrots, diced	2 cups	3 qt.
Celery, sliced	2 cups	3 qt.
Onion, minced	¼ cup	2 cups
Water	12 cups	3½ gal.
Fat (bacon drippings preferred)	2 tbsp.	¼ cup
Salt	2 tsp.	¼ cup
Tomatoes (strained)	½ cup	6 cups
Wilson's B-V	1 tbsp. (¾ oz.)	1½ cups (14 oz.)
Parsley, minced	¼ cup	2 cups

METHOD: Simmer, covered for 30 minutes or until tender, the first 8 ingredients. Add tomatoes and Wilson's B-V which has been dissolved in a small amount of the hot liquid. Garnish with parsley (optional).
SIZE OF SERVING: 1 cup (8 oz.)
APPROXIMATE COST PER SERVING: $.03½

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*Effect of the ingestion of excessive quantities of choline on the amount in tissues and urine. R. W. Luecke and P. B. Pearson.—p. 561.
A simplified method for the determination of iron in milk. W. R. Ruegamer, L. Michaud and C. A. Elvehjem.—p. 573.
The determination of uric acid in human blood. H. Brown.—p. 601.
The excretion of pyridoxine, "pseudopyridoxine," and 4-pyridoxic acid in the urine and sweat of normal individuals. B. C. Johnson, T. S. Hamilton and H. H. Mitchell.—p. 619.
*The chemical composition of the adult human body and its bearing on the biochemistry of growth. H. H. Mitchell, T. S. Hamilton, F. R. Steggerda and H. W. Bean.—p. 625.

Growth and Pantothenic Acid Compounds. The preparation of pantothenyl alcohol, N-pantoylethanolamine, N-pantoylglycine, N-pantoyl-*n*-propylamine, N-pantoylallylamine, and N-pantoylethylamine is described. The latter four are new compounds and were obtained as crystalline solids. These compounds inhibit growth of some microorganisms which require pantothenic acid for growth. The inhibition produced is competitive in nature; progressively larger amounts of compound are required to inhibit growth as the amount of pantothenic acid present is increased.

Ingestion of Excessive Choline. The ingestion of 40 gm. choline chloride daily for a period of 6 days did not increase either the free or total choline content of the liver, kidney, or plasma. The ingestion of choline is accompanied by an increase in urinary nitrogen. The increment in urinary nitrogen is virtually equivalent to the choline nitrogen ingested.

Composition of Human Body. The chemical composition of the body of a normal adult human, 35 years of age, has been reported, with reference to moisture, ether extract, protein (N x 6.25), total ash, calcium, phosphorus, and gross energy. The data have been considered in connection with requirements of calcium for growth on the reasonable assumption that the integration of calcium accretions during the growing period will equal the calcium content of the adult organism. The authors stress the great variability in individual nutritive requirements and in adaptability to a restricted food supply. "It is a statistical absurdity" to judge nutritive status of large communities on the basis of average experimental results obtained with a "mere handful of subjects."

JOURNAL OF NUTRITION

Vol. 29, May 10, 1945

*Composition of typical Mexican foods. R. Cravioto B., E. E. Lockhart, R. K. Anderson, F. DeP. Miranda and R. S. Harris.—p. 309.
The effect of the level of protein in the diet on the utilization of vitamin A. M. Dye, I. Bateman and T. Porter.—p. 341.
The nutritive value of the fatty acids of butter including their effect on the utilization of carotene. E. F. Brown and W. R. Bloor.—p. 349.
*The effect of atabrine on thiamine deficiency in the young rat. D. M. Hegsted, J. M. McKibbin and F. J. Stare.—p. 361.

Vol. 29, June 11, 1945

The availability of vitamins from yeasts. I. The absorption of thiamine by human subjects from various types of bakers' yeast. H. T. Parsons, A. Williamson and M. L. Johnson.—p. 373.
The retention of thiamine, riboflavin and niacin in cooking pork and in processing bacon. S. H. Jackson, A. Crook, V. Malone and T. G. H. Drake.—p. 391.
Dental caries in the cotton rat. III. Effect of different dietary carbohydrates on the incidence and extent of dental caries. B. S. Schweigert, J. H. Shaw, P. H. Phillips and C. A. Elvehjem.—p. 405.

Mexican Foods. The results of the analysis of 112 samples of Mexican foods for carotene, thiamin, riboflavin, niacin, ascorbic acid, calcium, phosphorus, iron, nitrogen, ash, and total solids content are presented. The kinds and nutritional qualities of the foods of Mexico are so different from those of the United States that the nutrition program in Mexico should be based upon the nutrient content of Mexican foods. It is probable that the Mexican diet is more adequate in ascorbic acid, thiamin, phosphorus, and calcium content than in riboflavin, niacin, and quality-protein content.

Atabrine and Thiamin Deficiency. The addition of atabrine to a thiamin-deficient diet for rats delays loss of weight, onset of symptoms, and death. Low levels of thiamin produce greater gains in animals receiving atabrine than in controls. Atabrine thus has a "thiamin sparing" action.

PUBLIC HEALTH REPORTS

Vol. 60, July 20, 1945

*An outbreak of *Salmonella* infection in man from infected chicken eggs. J. Watt.—p. 835.

Infection From Eggs. An outbreak of salmonellosis (*S. montevideo*) aboard a merchant vessel, affecting 28 individuals in a crew of 70, is reported. Epidemiological evidence indicated that infection resulted from the consumption of contaminated egg salad, the mayonnaise of which contained raw eggs. The same *Salmonella* type was isolated from two cases of shell eggs obtained on the ship.

FOOD INDUSTRIES

Vol. 17, July 1945

*What technology means to cereal processors. Part I. F. N. Peters.—p. 71.
*Why canned citrus juices deteriorate in storage. D. W. Riester, O. G. Braun and W. E. Pearce.—p. 76.
*Adding ascorbic acid to peaches before freezing. J. C. Bauernfeind and G. F. Siemers.—p. 79.
*Soya sauce processes and how they can be improved. L. J. Minor.—p. 92.
*Adding vitamin D concentrates to evaporated milk. K. G. Weckel.—p. 95.
*Sweet potato concentrate yields pro-vitamin A. D. M. Batson, R. T. O'Connor and N. Porges.—p. 99.
*New packages and products.—p. 106.
*Food industry news.—p. 111.
*Formulas.—p. 183.

Cereal Processing. Discusses, historically, part played by technology in development of the cereal industry, including testing materials, process control, package problems, enrichment, sanitary controls, and mechanical processing of grain.

Deterioration of Citrus Juices. The rate of general quality deterioration is directly proportional to the temperature of storage. At sustained temperatures in excess of 70°F., the rate of deterioration increases quite rapidly. Storage at 40°F. increases the retention of flavor, color and ascorbic acid as compared to storage at 70°F.; however, the effect is not so great as might be expected. The lowest intermediate temperature which can be economically maintained should be used. Canned orange juice which contains an abnormally high quantity of peel oil, more than 0.060%, rapidly develops a sharp terpene-like flavor during storage. Conversely, orange juice which contains an extremely small quantity of peel oil, 0.001 to 0.005%, has a relatively insipid flavor and aroma. A peel oil content below 0.030% is specified as the maximum allowable in Grade A canned orange juice under the U. S. standards for grades of canned foods. It is estimated that since 1940 most canned Florida orange juice has had a range of 0.010 to 0.020%. Improvements in other factors in the canning procedure appeared to increase the peel-oil tolerance of the juice. Levulose was found to have no perceptible deleterious effect upon flavor or color during 15 mo. storage at room temperature. It has been found that the free oxygen in a can of orange juice, and in most other acid foods, gradually decreases to zero at room temperature within 3 to 6 weeks after canning. During this period, the flavor of the juice is not seriously impaired. Therefore it would appear that the oxidative reactions which subsequently occur are due to secondary reactions or to some agent other than gaseous oxygen. Several antioxidants were added to samples which were then stored at room temperature. In concentrations as low as 500 p.p.m., the butyl ester of tyrosine caused a pronounced off-flavor within 26 days. None of the other antioxidants tested had any perceptible effect upon the flavor of the juice during a storage period of 13 months. Distinctly different flavors develop in juices packed in plain and enamel-lined cans, becoming perceptible within the first 3 weeks after canning. Members of taste panels were definite and consistent in their preference distinctions between the two flavors, yet opinions were so evenly divided that, upon the basis of juice flavor alone, the choice of containers must be made by each canner after consideration of his own market. For all practical purposes, ascorbic acid retention in the two types of containers is essentially the same.

Adding Ascorbic Acid to Peaches Before Freezing. Treatment of cut fruit with ascorbic acid before freezing delays discoloration and flavor change after the fruit is thawed. For peaches, it is recommended that ascorbic acid be added to the sugar syrup at the minimum rate of 150 mg. per pound of finished pack (fruit plus sugar syrup). Formulas for preparing syrups are given.

Soy Sauce. In recent years, both soy sauce and Worcestershire sauce have been introduced throughout the United States; all of the Worcestershire sauces contain soy sauce, the better grades having as much as 30%, the cheaper ones 10 or 15%. At present there are only two or three manufacturers of genuine soy sauce in the United States, and these firms use the approved Chinese method, with important technical modifications which permit ripening the sauce more evenly and quickly than by ancient practices. Soy sauce consists of a mixture of amino acids, peptides, polypeptides, peptones, simple proteins, purines, carbohydrates and other lesser organic compounds suspended in an 18% salt solution. Total solids constitute about 25% of the unadulterated

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product, which has a moisture content of approximately 75%. Soy sauce has a distinctive odor which develops during the manufacturing process. Two methods are commonly used in manufacturing: the ancient Chinese method of proteolytic enzyme digestion, the enzymes being activated through mold cultures which may require up to 2 years for the production of a quality sauce; and the use of acid hydrolysis of certain protein-bearing grains. In both methods, the starting material consists mainly of soybeans and wheat. Blending several separate batches gives a product superior to any straight-run sauce, and aging the sauce in special wood tanks improves the flavor. People in the United States are unacquainted with the true flavor and aroma of "Sho-yu" sauce, and there is a tendency for unscrupulous individuals to capitalize upon this ignorance by cheapening true soy sauce through dilution.

Adding Vitamin D to Evaporated Milk. Canned sterile emulsions of vitamin D in fluid milk constituents consist of mixtures of vitamin D in oil or animal fat, homogenized into a milk fluid. They are of standardized potency, ranging from 3000 to 25,000 U.S.P. units vitamin D per cubic millimeter. The concentrate is added to the bulk, homogenized, cold, evaporated milk. Since the vitamin D in the concentrate is dissolved in the fat fraction of the concentrate, and the fat fraction has been homogenized and dispersed in a medium of milk solids, the use of such a concentrate in fortifying a large volume of evaporated milk ensures relatively permanent distribution of the vitamin D factor in the fortified, canned evaporated milk. This distribution is of real significance, because the shelf life and storage conditions of evaporated milk frequently are favorable to fat separation. The operation should be supervised by a technologist and checked by the laboratory.

Carotene From Sweet Potatoes. In connection with investigations to extend the utilization of certain by-products of sweet potato starch manufacture, a study was made of the distribution of carotene in the major fractions obtained by processing high-carotene sweet potatoes for starch. Spectrophotometric determinations showed that the pulp contained approximately one tenth of the carotene originally present and the starch only a trace. It was concluded that the major portion must be in the supernatant liquor fraction obtained from sedimentation of the starch. It was found that the carotene particles were largely entrapped, carried down and concentrated in the coagulum obtained by acidification, as in a procedure for recovery of dispersed protein; 46% of the original carotene was in the coagulum, although that fraction weighed only 2% as much as the original sweet potatoes. Investigations are being continued towards a more complete recovery of the original carotene. In terms of the generally accepted human requirement of 5000 I.U. vitamin A per day, the coagulum from 100 lb. Porto Rico sweet potatoes would contain an amount of carotene potentially adequate to supply the entire vitamin A requirement of one person for about 250 days.

New Products. Among the Army-released group is Puretest Brand Condensed Pure Frozen Orange Juice, packed by Knight & Middleton, Inc., Clearwater, Fla. Lacquer-lined cans hold 6 oz. To serve, the condensed juice, which must be stored at temperatures below 18°F., is diluted with 3 times its volume of cool water. Another Army-released item is compressed coffee blocks, by Maguire Industries, New York. The blocks, 1¾ in. square and ½ in. thick, wrapped in cellophane, make about 3 cups. Souplets Madrilene, by American Dietaids Co., Inc., Yonkers, N. Y., is a coarse pinkish powder containing hydrolyzed vegetable protein, gelatin, salt, meat extract, sugar, dehydrated onion, lactic and citric acids, spices and food color. It is prepared in the same way as gelatin desserts. Campbell Soup Co., Camden, N. J., is testing 5 flavors of strained baby soup in the Philadelphia area. Frozen Food Center, White Plains, N. Y. is distributing frozen pies to stores in ventilated galvanized carrying racks. Apple, peach, plum, cherry and mince have been offered so far. A 1½-lb. jar of Helen Ann Holly-Day Fruit Cake Mix, packed by Chas. P. Wagner & Bro., New Orleans, contains glacé fruits, citron, both dark and white raisins, citrus peels, finely chopped nuts, sugar, pectin, spices, flavoring, sherry wine and brandy. The quantity is sufficient to add to 1 lb. of pound cake batter. Tomato Mix, marketed by Sardik Food Products Corp., New York, contains dehydrated tomato, starch, molasses, powdered onion, celery and seasonings, in ½-oz. packets. Tater Pancake Mix, by Fine Products Co., contains only dehydrated potatoes and onions; one egg beaten with 1½ cup water must be added to 4-oz. envelope and the mix allowed to rehydrate 5 min. before frying.

Salvaging Meat Products. The world-wide shortage of edible fats and oils and proteins has led to the development of two formulas for meat products in which the parts of the animals that normally find their way into tankage in this country are being packed, for UNRRA use, in the form of Canadian Meat Lunch and Canadian Blood Sausage. Formulas are given.

Formulas. Includes formulas for peanut muffin mix and Irish soda bread.

JOURNAL OF HOME ECONOMICS

Vol. 37, June 1945

*These are dependables. K. E. Baldwin.—p. 324.
*Vitamin retention in quantity cooking of vegetables. B. K. Watt and M. B. Attaya. —p. 340.
*Letters from our readers.—p. 348.
*Study of the dietary level of 100 families. F. Hardy.—p. 351.

Prominent Members of A.H.E.A. Retiring. Miss Baldwin, who has been in charge of business affairs of the A.H.E.A. since 1913, writes briefly concerning two members who have contributed to the development of the association and who are now retiring: Benjamin R. Andrews, who launched the *Journal of Home Economics* and acted as editor and business manager for the first three issues, after which Mrs. Mary Hinman Abel was made editor; and Frances L. Swain, formerly vice-president (1923–26) and president (1930–32), who retired last February after 17 years as director of household arts in the Chicago public schools.

Vitamin Retention in Vegetables. This report brings together results from 17 studies, some of them preliminary, on vitamin content and vitamin retention of vegetables prepared and served in Army messes and in other large-scale operations. Both authors are food economists in BHNHE. "The wide range of values found in these studies for the vitamin content of cooked food indicates the danger of generalities based on what may seem at first glance a fairly large number of cases. As it was not feasible to control all factors under actual large-scale feeding operations, much more information is needed before stable averages can be developed for different methods of food preparation. Data on percentage retention should be considered even more tentative—to be replaced whenever more dependable data are available." A list of the studies covered is included.

Correspondence. Ava B. Milam, Oregon State College, writes: "Our dietetic majors qualify for student dietetic work in A.D.A.-approved institutions at the end of their four years. Our students also qualify for commercial home economics jobs in the four years —and we have no difficulty in placing them. Oregon State College is convinced that it has a dual responsibility to all of its students, training them for the home and for a profession, and that those who remain in the profession are the better for the breadth of their undergraduate program."

Dietary Level of 100 Families. A one-week study of the diets of 100 families in Snohomish County, Wash., was made in September 1943. Of all the families studied, only 36 met the N.R.C. recommended allowances for every dietary essential. Fourteen familes had an intake of less than 75% of the recommended allowance for one or two dietary essentials. More than one third of the families were below the recommended level of calcium; more than one fourth in calories and riboflavin; and more than one fifth in niacin. The diets of farm and other rural families were slightly better than those of city families. Only one of the six families with the lowest incomes had a diet which met the recommendations in every way. In the highest income level, about half as many families were as low in niacin as those in the other groups. "Calcium and riboflavin were the nutrients (other than calories) needed by the greatest number of families. . . . Thiamin and ascorbic acid values seem better than they actually are. . . . The menus included two types of poor meals: one with so few foods that they could not possibly supply an optimal diet unless chosen carefully; and the other, with too many foods of the same group."

PERSONNEL JOURNAL

Vol. 24, May 1945

*Reducing labor turnover. S. Margolius.—p. 22.
*Charting supervisory efficiency. G. G. Flood and M. A. Lewis.—p. 29.

Labor Turnover. A study at the Los Angeles Port of Embarkation indicated that workers leave their jobs for the following reasons: released due to absenteeism or inefficiency, dissatisfied with positions or working conditions, illness, return to school, return to teaching, transportation, "following husbands," civil service rating, monotony of work, resentment of supervisor, or feeling of unfair treatment. Non-cash devices that finally succeeded in effectively paring the rate of turnover month by month were motivation, work simplification, and rearrangement of supervision. These factors were employed to interest the worker in his job and help him to understand why he should stick to it.

Supervisory Efficiency. The necessity for rapid promotions because of the recent industrial expansion resulted in the elevation of many individuals to supervisory positions who were only partly skilled technically, and in many cases otherwise inadequately prepared to assume their responsibilities, especially in the ability to handle people. Because of the important role of a supervisor in maintaining and increasing production through the efforts of those he supervises, it would appear feasible to chart or record a

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supervisor's "efficiency" just as carefully as industry charts production control records. Morale is a measurable element and the charting of morale is most conveniently expressed in terms of absenteeism and labor turnover. Complaints relating to supervision made to employee counselors or direct to management could be appropriately categorized. The number of mistakes of major importance made by employees under a supervisor's direction could be shown as a demerit point, as to some extent it reflects the competence of the supervisor in the role of an instructor. The number of approved suggestions could be noted as merit points. Production record of the unit over which the supervisor has responsibility could easily be portrayed. It is believed that this technique if properly inaugurated, publicized, and supported by management can prove effective in localizing and correcting causes of employee dissatisfaction.

RESTAURANT MANAGEMENT

Vol. 56, May 1945

*Preparing poultry for quantity service. L. P. De Gouy.—p. 42.
*Why it pays to provide proper training for food handlers. L. Harris.—p. 44.
How to secure more food handling equipment.—p. 45.
*A soapless detergent.—p. 48.

Vol. 56, June 1945

*Putting vitamins in the production line. T. B. Soden.—p. 36.
*Eliminating spoilage losses with a fast freezing unit. L. O. Rhodes.—p. 39.
Preparing poultry for quantity service. L. P. De Gouy.—p. 44.
*Food shaping machines.—p. 50.
*Waxed paper.—p. 50.

Preparing Poultry. This is a continuation of the Ready Reference Charts and gives the different kinds of poultry, their characteristics, weight and age, how to cook, and some representative recipes.

Training Food Handlers. Kentucky's Division of Vocational Training, in cooperation with the State Health Department, sponsors a set of four 2-hour classes on food handling. Many employers pay full wages to food handlers attending the course, or even give them bonuses for doing so. Employees attending 3 course sessions out of the 4 are awarded a food handling certificate having statewide recognition. Four benefits to management were listed as: a trained employee handles food more quickly and cleanly; the customer appreciates food served under sanitary, attractive conditions; employee turnover is reduced; and with a well trained staff there is little chance for a case of disease or food poisoning to give an establishment fatally bad publicity.

Soapless Detergent. This product, developed by the Heider Chemical Co., when added in the proper amount turns the water light green—when too strong, the water turns yellow. Noninjurious to the hands, neutral in either acid or alkaline solutions, it prevents sediment forming on the dishwashing machine and utensils.

Industrial Cafeteria. The Glenn L. Martin Company of Baltimore operates the largest industrial cafeteria in the East with a staff of 600 workers preparing 55,000 to 60,000 meals per 24-hour day. To offset nationwide shortages in sugar, fats, and meat, purchasing plans call for 20,000 lb. fresh vegetables per week and 500 cases fresh fruits, plus 12,000 lb. frozen fruits, used mainly in pies. Every possible source must be canvassed to obtain the needed quantities. Meat continues to be the greatest problem, 45,000 lb. required for a single day's serving; and thus buying has to be done in much smaller amounts from three or four concerns. Sugar bowls are less numerous and corn sweetening is substituted for cane in desserts. Salad consumption has increased 500% in the past year. Menus are planned a week in advance by the supervising chef and a trained dietitian. From a central distributing point, supplies are rushed by electric truck and other special conveyances to a dozen plant kitchens.

Eliminating Spoilage With a Freezing Unit. The author believes that the value of a fast freezing unit lies in the fact that its constant temperature of zero completely stops the spoilage of food, while an ice or mechanical refrigerator merely retards spoilage processes. Food put in a freezing unit is frozen solid all the way through in a little over a half hour, and if perishables put in the freezer are fresh to begin with, they will stay that way indefinitely. Frozen foods can also be stored as soon as they are delivered. A freezing unit should be placed near the refrigerator, and as it is best to thaw some foods before their final preparation for serving, the refrigerator is the ideal place for this. Another factor in favor of freezing units is that meat, particularly beef, is actually benefited by proper freezing.

Food Shaping Machines. Food shaping machines that cut and shape up to 3600 hamburgers an hour will shortly be available from the Fry-Kutter Company. Another cutter which has a maximum output of 1800 hamburgers per hour is being manufactured, and either machine can be adjusted to produce hamburgers 3 or 4 in. wide, ranging from 4 to 12 to the pound.

Waxed Paper. A heavy waxed paper, "Lockerap," designed specifically for wrapping foods to be put in deep freezing lockers, has been developed by Western Waxed Paper Company. The paper is treated with a heavy coating which will not crack or chip even at the lowest temperatures.

WHAT'S NEW IN HOME ECONOMICS

June 1945

*Food in today's world.—p. 42.
*School food service instruction for home economics teachers.—p. 59.
*Here, there and everywhere. W. S. Pendergast.—p. 63.

July 1945

*The cafeteria can have food. F. C. King.—p. 27.

Food Supply Situation. A summary of the food situation in the world today, based on official reports and comparing supplies available with N.R.C. recommended allowances. Recently developed products in each food group, nutritive value, and suggestions for use and care are included.

School Food Service Course. Kansas State College now requires a course in School Food Service for all students preparing to teach home economics. This course was planned, first, by sending a check list to institution management departments in 52 colleges and universities in various parts of the United States, second, by sending a check list to high school home economics teachers in Kansas. The plans were then checked by several persons who had had experience in high school food service units and by members of the Departments of Institution Management and Vocational Education. The course uses the unit problem plan of organization. The plan includes history of the school lunchroom, recent developments, aims, organization of a school food service unit, job analyses, job specifications, duties of the manager, laws of sanitation, menu planning, food buying, equipment, floor plans, a budget and necessary records. The discussion part of the course carries 2 semester hours' credit and the laboratory 1 semester hour.

Notes of Interest to Lunchroom Managers. "We are coming to the end of a hard school year. We have managed to get along under food restrictions which once we would have considered utterly impossible. We have nursed along old and fragile equipment. We have been grateful for slow and transient help and we have carried home much work at night that should have been done at school. In spite of all this, it has been a satisfying year. We have served wholesome, adequate lunches at moderate costs to more children than ever before. We know that for many of these children this lunch was the best meal of the day. We have seen unfamiliar foods become familiar and acceptable and we know that we are enlarging the range of food likes not only of our student patrons but of their families as well. Thus, we feel that we have made a worth-while contribution to the nation's nutritional well-being. Some of our hardships have been good for us. We have learned, under duress and coaching, that we can serve an attractive lunch with a very small range of choice and with very little dependence on resale items. We have learned that even high school students will accept the well-planned plate after a little grumbling adjustment. We have also learned to streamline our recipes, to simplify our records and to be very, very considerate of our employees. All of these are to be remembered, come the day when times are easier. How far back do we want to go along the road to beautiful counters and bad trays?"

Food for the School Cafeteria. The cafeteria manager of Geneva High School, Geneva, N. Y., describes the varieties and amounts of fruits and vegetables frozen for use during the year by a group of the homemaking class, according to procedures given in the Cornell bulletin *Home Freezing of Farm Products*. The problem of storage was solved by the town's refrigeration plant which built for the school three units of 5 lockers each. Most of the food was purchased locally from truck gardeners and the agriculture teacher aided in locating available supplies. A chart lists the names and amounts of food purchased and the net results obtained.

Fellowships and Scholarships in Restaurant Administration. The School of Business of the University of Chicago, in cooperation with the National Restaurant Association, has announced the following fellowships and scholarships available for 1945–46 for the program in restaurant administration leading to the degree of Master of Business Administration: three fellowships of $1,000 each, four scholarships of $500 each; the former to be awarded only to men and women who have received a B.A. or B.S. degree from a recognized college or university, and the latter to those who have completed at least two years of general college work. For further information, address: Dean, School of Business, University of Chicago.

In the Activity of the Endocrine Glands

The depth to which protein permeates the fabric of metabolic life, and the role it plays as "raw-material" and component of elaborated secretions is indicated in hormonal composition.

Thyroxine, the active principle of the thyroid gland, is an iodinated phenylether derivative of the amino acid tyrosine. Epinephrine, the active principle of the adrenal medulla, is also a tyrosine derivative. Insulin, as elaborated by the islands of Langerhans, has been isolated in crystalline form and found to be a protein.

Only from the proteins of the foods eaten can the organism derive the protein substances required for these complex purposes.

Among man's protein foods meat ranks high, not only because of the percentage of protein contained, but principally because its protein is of highest biologic quality, applicable wherever protein is required.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

ACCEPTED AMERICAN MEDICAL ASSN. Council on Foods and Nutrition

AMERICAN MEAT INSTITUTE

MAIN OFFICE, CHICAGO . . . MEMBERS THROUGHOUT THE UNITED STATES

News Notes

Annual Meeting, American Dietetic Association. Due to travel restrictions, at present only the House of Delegates and the Executive Board are to convene at the Palmer House, Chicago, during the week of October 15 for the transaction of necessary business. Further details concerning any change in plans as a result of V-J day will be sent to the membership in a special announcement. Because of travel limitations, attendance at the meeting of the House of Delegates was to be limited to one delegate from each affiliated state association. Members of the Association would receive a "call to the Annual Meeting" not less than 30 days prior to October 15, according to the provisions of the Constitution, but would be asked to *mail* ballots to the American Dietetic Association in Chicago. Meanwhile, the Executive Board has voted unanimously to hold the 1946 annual meeting of the Association at the Netherland Plaza Hotel, Cincinnati. October 14–18, 1946 is the tentative date. Should conditions permit, a meeting of directors of approved training courses for dietitians may be held in the interim, at a date to be announced later.

Food and Nutrition Conference for Dietitians. Major Helen C. Burns, director of dietitians, A. U. S., reports that about 65 American Army dietitians and 55 dietitians from Canada, Australia and Great Britain attended a conference at the "Churchill" Hospital, Oxford, England, July 7–9, 1945. The program included a tour of Oxford Colleges, visits to a British military hospital, industrial canteens and food research laboratory, and to Radcliffe Hospital Dietary Department, and the following speakers: Col. Lester M. Dyke, M.C., commanding officer, 91st General Hospital, U. S. Army; Capt. A. Black, nutrition officer, Headquarters United Kingdom Base, Office of the Surgeon; W. Shelton Smith, director, Public Relations Division, Ministry of Food; D. Hollingsworth, nutritionist, Scientific Advisory Division, Ministry of Food; M. F. Morkham, director of school meals, Surrey County Council; Rose Simmonds, president, British Dietetic Association; M. C. Broach, dietetic adviser to the King Edward Hospital Fund for London; Lt. B. F. Beilfuss, A.U.S.; Lt.-Dietitian H. M. Campbell, Canada; Marjorie Rouse, chief dietitian, Commonwealth Department of Labour and National Service, Australia; Lt. Col. A. N. Childs, Canadian Military H.Q.; Capt. J. A. F. Stevenson, nutrition officer, Directorate of Medical Services, C.A.O.; Sir John Boyd Orr; H. M. Sinclair, director, the Oxford Nutrition Survey; H. J. R. Stent, director, Barkers (Contractors) Ltd.; Dr. J. C. Thompson; C. G. Sanctuary, administrator, and B. Glascock, dietitian, Radcliffe Hospital. Subjects covered were: dietetics as a career, the school lunch, food control, food planning, training of dietitians, the dietitian in industry, world food policy, recent advances in nutrition, food research in canteens, postwar planning, and hospital feeding.

Army Medical Department Dietitians Now in Service. Major Helen C. Burns, director of dietitians, A.U.S., wrote under date of July 14 that the ceiling on Army requirements for Medical Department Dietitians was set at 2150. As of June 30, 1945, 1600 Medical Department Dietitians had been appointed. The following is the breakdown in grades: Majors, 1; Captains, 53; First Lieutenants, 835; Second Lieutenants, 711. There were also 36 student and 78 apprentice dietitians in training.

Army Women Overseas. Under date of June 30 a release from the Office of the Surgeon General, Technical Information Division, contains a statement by Major Margaret Craighill, M.C., consultant to the Surgeon General, concerning the health of Army women overseas. Major Craighill, formerly dean of Woman's Medical College of Pennsylvania, and the first woman to be commissioned in the Army Medical Corps, stated that in general the health of Army women overseas is excellent—even better than that of the men in many places because where possible they have been given better living quarters.

Criteria, as of August 25, for Separation of Medical Department Dietitians: (1) Dietitians returned from overseas or declared surplus by a major force are eligible for relief from active military duty if they have an adjusted service rating score of 65. (2) Dietitians who have served for more than one year, 50 years of age or more, are eligible for relief from active military duty. (3) Dietitians with dependent children under 14 years of age are eligible for relief from active military duty. (4) Dietitians who are married to individuals who have been separated from the service are eligible for relief from active military duty. (5) No personnel eligible for relief from active military duty under the foregoing provisions will be relieved if the individual desires to remain in active military service and has an efficiency index of 40 or better.

United Nations. A letter to Maniza Moore, president, A.D.A. from William G. Carr, associate secretary, National Education Association, who served as that organization's consultant to the United States delegation at San Francisco, expresses appreciation for A.D.A.'s endorsement of the Educational Policies Commission's open letter to the official delegates. According to a statement by the N.E.A., at this meeting explicit recognition was accorded the importance of education in promoting mutual understanding, peace and security, justice and well-being for the nations and peoples of the world.

Publications of the A.D.A. to be Exhibited Abroad. At the request of Donald S. Cameron, chief, Foreign Information Research Division, OWI, copies of this JOURNAL, *Dietetics as a Profession*, and other publications of the Association, including information on approved training courses for dietitians, were dispatched to OWI to be included in a large educational exhibit held in Brussels, Belgium, September 15–30, in the Bibliotheque Royale. This was done in cooperation with Charles Fonck, special adviser to the Belgian Minister of Education. Purposes of the exhibition were to acquaint the people of Belgium, Holland, and Luxembourg with technical, professional, and scientific progress in the United States during the war years, and to provide an opportunity for educators, government bureaus, librarians, etc. to order books and periodicals from the United States. It was planned that after its display in Belgium, the entire American section would be forwarded to Paris.

Mrs. Bertha Shapley Burke Receives 1945 Borden Award. The 1945 Borden Award for outstanding achievement in research in applied nutrition, administered by the American Home Economics Association, has been presented to Mrs. Burke, associate in nutrition, Harvard University School of Public Health, for her studies on diets of pregnant mothers and the effect of these diets on their babies. Her research has shown that the physical condition of the child at birth is related to the character of the diet of the mother during pregnancy. (*See* review by Mrs. Burke in this JOURNAL for December 1944.) A member of the American Dietetic Association, Mrs. Burke is a graduate of Vassar College and received the M.S. degree at Columbia University. In 1932 she became nutritionist in the Child Development Laboratory at Harvard University and was appointed associate in nutrition in 1936.

Army Dietitians Form Association. In a letter dated June 1, Lt. Kay L. Johnson, M.D.D., writes as follows: "Greetings from the dietitians at Base 'X', c/o postmaster, San Francisco. The organization meeting for the Base 'X' Association was held May 21 with Lt. Olive Smith, head dietitian with a large general hospital unit now operating in a former tuberculosis sanitarium, as hostess. Our membership should soon be nearly 40 at this base. Many of the group were not able to be present for this first meeting, but those who were, decided upon the following organization plan: An executive committee of three to form our governing unit. The hostess for the meeting each month will automatically take over as chairman, and will be dropped from the committee after her hospital has entertained. Each month a new member is elected to the committee and will take her turn for the following three months as junior chairman, assistant chairman, and hostess. The principal purpose of our group is to establish a means of social contact between dietitians at this base, but it will also provide a chance to discuss problems pertinent to our profession and to the operation of Army messes in this area."

Booklet for Veterans. A pamphlet entitled *Coming Home* has been prepared by the Metropolitan Life Insurance Company, 1 Madison Ave., New York 10, in cooperation with the AAF and OWI, for families and friends of returning servicemen, as well as for the veterans themselves. The booklet offers suggestions for treatment of both the well and the wounded veterans, the disabled, and those who have experienced emotional or nervous disturbances. A summary of problems and their solution completes the pamphlet.

School Lunch Program to Continue. During the 1945–46 fiscal year under the provisions of the 1945–46 Agricultural Appropriation Act, Congress has authorized the USDA to use $50,000,000 to help defray the cost of food for use in school lunch programs. Federal assistance will be administered as it was last year. The program is designed to operate under local sponsorship of school boards and other school organizations, parent-teacher groups, civic groups and other nonprofit organizations. A group desiring to sponsor a school lunch program, and needing financial assistance to operate one adequately, may apply to the USDA for aid.

America's First Hospital Inventory. For the first time in history a complete inventory of the nation's hospitals is being taken as part of a broad hospital study under the direction of the Commis-

Research Establishes

WHITE BREAD APPETITE APPEAL *with* WHOLE WHEAT NUTRITION

THE PROBLEM:

For many years people eating a limited variety of foods have been urged to consume whole wheat bread for maximum bread nutrition. Most people place appetite appeal ahead of nutritive value in their selection of foods. The appetite appeal of whole wheat bread is so much below that of white bread that only a small percentage of all bread consumed is whole wheat.

THE SOLUTION:

The ideal is to provide whole wheat nutrition with white bread appetite appeal. This can be done through the use of 6% nonfat milk solids. The appetizing flavor and taste and appearance of white bread containing 6% nonfat milk solids is well known. Recent research has shown by feeding tests with growing young rats that such bread "promoted good growth and apparent good health, and is equal to whole wheat for promotion of growth."*

Also, "Evidently the growth promoting value of white bread with (6%) nonfat milk solids is greater than that of whole wheat bread, while the bread made from whole wheat flour with (6%) nonfat milk solids is definitely better in the support of growth than either of the other two."**

Make the appetizing white bread with the whole wheat nutrition. Use at least 6% nonfat milk solids.

*Quoted from Research Report **Quoted from Research Report

AMERICAN DRY MILK INSTITUTE, Inc., 221 N. La Salle St., Chicago

Your Delicious Breakfast in a Bowl!

Here is a delicious combination that's packed with energy! Every ounce of crisp, malty Kellogg's Corn Flakes provides 107 calories of energy food, plus thiamin, niacin, and iron, equal to whole-grain levels. And the flavor of fresh Kellogg's Corn Flakes is famous! No wonder it's the world's most popular breakfast cereal!

Served with milk and fruit, Kellogg's Corn Flakes makes a notable contribution to the day's dietary, and serves as a grand way to coax people to eat a better, more nourishing breakfast.

The chart is a handy guide to the nutritional values contained in this appetizing breakfast.

COMBINED VALUES IN THIS CEREAL BOWL

	KELLOGG'S CORN FLAKES (1 1/3 cups —1 oz.)	MILK (1/2 cup —4 ozs.)	PRUNES (3 large with juice)	TOTAL
CALORIES	107	78	125	310
PROTEIN gm.	2.2	4	.75	6.95
CALCIUM mg.	1	134	21	156
PHOSPHORUS mg.	11.1	105	30	146.1
IRON mg.	.5	.22	1.5	2.22
VITAMIN A I. U.		160	750	910
THIAMIN mg.	.12	.045	.018	.183
NIACIN mg.	.6	.12	.57	1.29

KELLOGG'S CORN FLAKES - PEP - RICE KRISPIES - ALL-BRAN - KELLOGG'S RAISIN 40% BRAN FLAKES - KELLOGG'S 40% BRAN FLAKES - KELLOGG'S SHREDDED WHEAT AND KRUMBLES

sion on Hospital Care, 22 E. Division St., Chicago 10. The commission will also analyze the economic, geographic, and population factors—all of which have a direct bearing on postwar hospital construction and the future quantity and quality of hospital service throughout the country.

Hospital Diets. War Department Technical Manual TM 8-500 entitled Hospital Diets, may be obtained at 40 cents each upon application to the Superintendent of Documents, U. S. Government Printing Office, Washington 25.

Rural Water-Supply Sanitation. Under this title a booklet containing recommendations of the joint committee on rural sanitation, and including various methods of water purification, may be obtained at 10 cents from the Superintendent of Documents, U.S. Government Printing Office, Washington 25.

Films for Food Handlers. "Our Health in Your Hands" is a series of four sound slide films (strip films) intended for use as visual aids in teaching sanitation to restaurant personnel. Each 35 mm. strip film with records lasts 10 to 15 min. The records are 16 in. in diameter and designed for use on a turntable that revolves at 33⅓ r.p.m. The individual lessons are: "Germs Take Pot Luck," showing how germs cause disease, how diseases may be spread—particularly in restaurants—and how restaurant employees can do their part toward protecting the health of the nation by following correct sanitation practices; "Service With a Smile," illustrating in photograph and narrative the need for attention to personal health, ways to keep well, and clean practices in serving food; "In Hot Water," demonstrating the correct way to wash dishes, handle, and store them, with hand dishwashing shown step by step, and a briefer sequence showing the operation of a single-tank dishwashing machine; and "Safe Food for Good Health," recommending safe buying, preparation, and serving of food, and how to protect it from contamination. The series, produced for the Sanitary Engineering Division, Milk and Food Section, by the Division of Public Health Methods, U. S. Public Health Service, may be purchased from Castle Films, Inc., 30 Rockefeller Plaza, New York, at $10, less 10% discount to schools and other nonprofit institutions.

Correction. In the news item on p. 480, July-August JOURNAL, concerning vitamin C tablets in fruit canning, the potency of the tablets should read 100 mg., not 100 gm.

Under the report of the Nominating Committee in the same issue, E. N. Todhunter is incorrectly credited with being chairman of a research committee of the A.A.A.S.—it should be A.H.E.A.

A. D. A. Included in OWI Directory. At the request of the Foreign Information Research Division, Outpost Service Bureau, OWI, a statement concerning the purpose, organization, operations, etc. of the American Dietetic Association has been furnished for incorporation in a directory of American organizations to be distributed to OWI representatives abroad.

The Dietitian in Chile. Dr. Esteban Kemény, director, School of Dietitians, Santiago, writes that the work of the dietitian in Chile is proceeding slowly but steadily. Six years ago Dr. Kemény started the training of students in the field of dietetics, and today he reports that over 80 graduate dietitians are employed in various hospitals and sanatoria. Each year the curriculum is enlarged—last year a 60-hour course in hospital administration and accounting was included in the 2-year training program.

Feeding in Industry. Some 7 million workers in manufacturing industries are now being served food in their own plants; before the war only 2 million could get food on the job, USDA industrial feeding specialists report. One large manufacturing concern states that in one of its divisions the absenteeism rate stood at 8.4% before the new cafeteria in the plant was opened. During a comparable period after the cafeteria was in use, absenteeism was reduced 3.1%. The rate of accidents in the year before the opening of the cafeteria was 12.4%; in the year following, 8.5%.

A new booklet for plant managers and those in charge of industrial cafeterias and lunchrooms, *Industrial Feeding Management*, is available from the USDA, Washington 25.

Industrial Cafeteria Advisory Committees, Australia. In leaflet No. 12, Industrial Welfare Division, Department of Labour and National Service, Commonwealth of Australia, it is stated that "Unless the cafeteria is small enough to allow personal contact with patrons, its management can only be fully effective with the assistance of an advisory committee. This provides a liaison, informing patrons of food problems and costs, and informing management of criticisms and suggestions, and the majority view in matters of opinion. The committee makes it 'our cafeteria,' and awakens the interest of employees by the knowledge that improvements are not beyond their control and responsibility. It keeps the cafeteria management alert, without causing undue irritation, and protects it from irresponsible complaints. The committee is also able to encourage the careful use of utensils and equipment. By developing the cafeteria as the social centre, and by other more direct means, the committee can play an important part in increasing patronage." A "model constitution" for the advisory committee, made up of employees elected every 6 or 12 months, outlines the functions of the committee. In general, these are "to consult and advise the Cafeteria Manager on all matters relating to the efficient operation of the cafeteria services and to encourage the cooperation of the patrons in achieving maximum efficiency." The annual financial statement of the cafeteria is submitted to the committee and recommendations are made to the cafeteria manager, the financial policy laid down by the firm for the operation of the cafeteria having been made clear to the committee in the beginning. A "normal arrangement" is defined as follows: the firm to bear capital expenses, manager's salary, cost of lighting and cleaning, and perhaps to contribute to abnormal wage costs involved in serving shift workers, all other charges to be met from the receipts of the service.

The Department of Labour and National Service is prepared to advise on all aspects of the planning and operation of industrial food services, including type of service that can be operated on a self-supporting basis, layout and design of cafeteria, equipment, staff, selling prices, etc. The Department collaborates with government agencies in order to ensure that supplies of foodstuffs are available to meet requirements. In regard to the menus, it is stated that when a service is being opened the Department will prepare sample menus for the first week and can make available to the management a set of guide menus. *Standard Recipes for Industrial Cafeterias*, containing 500 quantity recipes, may be purchased for 10 shillings. Advice on food values and ways of making the most of ration coupons and avoiding waste is also available. A model financial statement is provided by the Department, an example of which is included in the leaflet. Further information and copies of this leaflet and another entitled *Notes on Factory Planning* can be obtained from the Department of Labour and National Service, 37 Swanston St., Melbourne.

Institute of Food Technologists. According to E. S. Stateler, Publicity Committee, Institute of Food Technologists, 520 N. Michigan Ave., Chicago, papers presented before meetings of regional sections will be published by the institute as its 1945 proceedings and sent to all members in good standing. The program originally scheduled for the annual conference, which was cancelled, has been largely presented before meetings in sections in which authors of papers reside. A list of subjects and speakers is included in the release from Mr. Stateler.

Nutrition Survey in European Theater. A nutrition survey team headed by Major Marvin B. Corlette has returned to this country following an inspection of the food situation in Utrecht, Amsterdam, The Hague, and Rotterdam, after the German surrender. Major Corlette also visited the concentration camps and assisted in plans for feeding starvation cases.

Courses for Buyers of Institutional Supplies. A folder from University Extension, Columbia University, New York, announces an evening course in the purchasing of institutional supplies, and standards of quality. The course, beginning October 1, 1945 and ending January 21, 1946, deals with the quality and service factors which contribute to economy in the purchase and use of institutional supplies and equipment. The major types of maintenance supplies and equipment for laundry, kitchen, heating plant, and building will be considered, among other objectives. The course, carrying 2 points, is designed for persons who are preparing for or are employed in administrative positions in hospitals, hotels and other institutions where volume purchasing is done. Instruction will be given by Dewey H. Palmer, M.S., research director, Hospital Bureau of Standards and Supplies, Inc. The registration period is September 20–26.

National Food Situation. On June 30 the War Food Administration, by Executive Order at its own request, was merged with the U. S. Department of Agriculture, under the new Secretary of Agriculture, Clinton P. Anderson. A new office, Director of Home Food Supply, was created, with Paul C. Stark appointed to the post.

Results of a Bureau of Agricultural Economics survey of Houston housewives' acceptance of whole and nonfat dry milks, reported in the June *Marketing and Transportation Situation*, USDA, indicate that housewives who have made more than one use of the products consider cooking and baking to be the best methods of making use of both products. Other uses favored, in the order named, were: as cream for coffee, for drinking (plain), in cocoa, in ice cream. At the time the experiment was run, there was a shortage of fresh milk in the area, and local distributors had stocked grocers with both dry whole milk and nonfat dry milk solids. An educational and promotional campaign was carried on at the same time.

According to Bureau of Labor Statistics' figures, index of cost of living of city families in May 1945 was 128, considering 1935–39 costs as 100. The Bureau of Agricultural Economics figure for retail prices of farm food products for the same month is 135, on the same basis.

Civilian consumption of total milk solids has increased from about 69 lb. per capita (actual weight of solids) in the 1930's to

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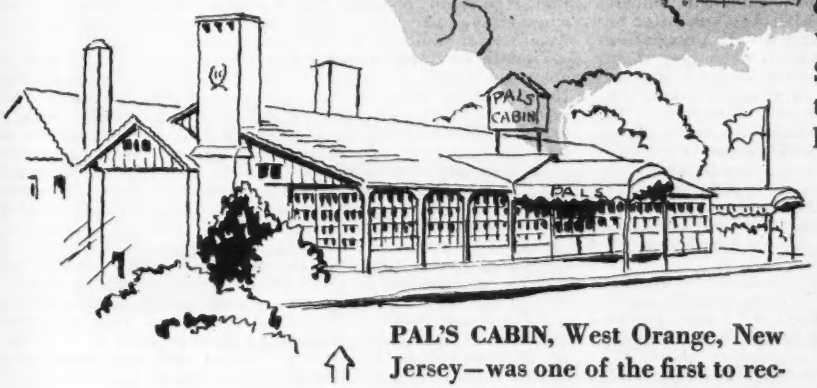
SERVES THE NATION
with "Appetized" Toast that is Bread at its Best!

Yes, Savory serves . . . and Savory *saves*. Wherever the importance of serving fresh, hot toast is recognized, Savory owners agree that Savory toasters save time, money, labor, fuel and maintenance costs.

WESLEY MEMORIAL HOSPITAL, Chicago, Illinois—One of 100's of hospitals which have recognized the dietetic value of Savory "Appetized" toast.

WASHINGTON STATLER—Statler Hotels use nothing but the best in equipment—have been Savory users since 1935.



PAL'S CABIN, West Orange, New Jersey—was one of the first to recognize the time, labor and space saving advantages of Savory toasters in "Outpost Inn" operations.

Model PD, gas-operated 360 slices per hour

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over 78 lb. in 1944 and 1945. The increase has been in the consumption of nonfat solids.

The United States has shipped about 8½ billion pounds of agricultural commodities, mostly food, to Soviet Russia under lend-lease since December 1941. Practically all of the foods shipped were used for the Red Army or for clinical treatments, according to reports from Russian sources, quoted by USDA in the *National Food Situation*. In 1944 shipments of meat totaled 990 million pounds, butter 80, lard 291, vegetable oils 493, canned milk 20, dried milk 34, and eggs 420 million pounds. U. S. civilian consumption in 1944 was: meat 19,338 million pounds, butter 1533, lard 1795, vegetable oils 2449, canned milk 2092, dried milk 248, and eggs 5676 million pounds. Figures on other foods are included in the publication.

In response to numerous inquiries as to why meat cannot be imported into the United States from Canada, USDA issued the following statement: "Canada has made commitments to ship its exportable surplus of meat to the United Kingdom and to liberated areas. . . . This availability to the United Kingdom from Canada entered into the decision to allocate no United States meat to the United Kingdom from the July–September quarter of 1945. It is estimated that the shipments by Canada to liberated areas in 1945 may reach about 110,000,000 lb. canned meat. Canada also is continuing to assume the responsibility of providing meat for certain areas, such as Newfoundland and British West Indies. . . . Some meat from Canada is being furnished to the U. S. military forces. . . . Canada now rations butter, sugar, canned fruits, preserves and evaporated milk. While consumption of some foods such as meats is a little higher in Canada than in the United States, consumption of other foods, particularly sugar and canned fruits, is lower. From 20,000,000 to 30,000,000 lb. poultry is being furnished this year to the war services of the United States by Canada. Poultry may be imported from Canada by private importers in the United States."

Changes announced June 30 in the percentages of canned vegetables required to be set aside by processors for government purchase will make available to civilians more commercially canned vegetables than originally planned for this year, but 19% less than civilians received last year.

WFA expects that 2800 tons of Turkish dried figs will be available in 1945 for importation into the United States.

WFA has required a 100% set-aside of all the hot packed and frozen cherries processed in 1945.

Supplies of tea for the current year ending March 31, 1946 probably will be about the same as last year, according to USDA. At present, the supply is all black and is coming from India and Ceylon.

The American Butter Institute, Chicago, reported in *Food Field Reporter*, July 9, that civilian butter stocks this year are 222,670,000 lb. less than in 1944, despite instances of local excess supplies.

National Restaurant Association. A report by the president of the National Restaurant Association to the membership indicates that the National Restaurant Industry Advisory Committee has been instrumental in changing or amending many OPA regulations affecting food establishments during the war, such as those affecting restaurant ceiling prices, bread slicing, pleasure driving, inventory adjustment, steel allocations to silverware manufacturers, midnight curfew, use of freon gas, etc. Members of the advisory committee have also acted as consultants to the Army and Navy. It is stated that reductions in allotments of rationed food to the public feeding industry for July and August were made "over the unanimous protest of the Committee." The committee, officially appointed by the Government, consists of representatives from hotels, restaurants, dining cars, grills, industrial cafeterias, etc. all over the country, many of whom are not members of the National Restaurant Association.

In a presentation of the "Operational Problems of the Institutional User Versus the Home Consumer," directed to Clinton P. Anderson, Secretary of Agriculture and War Food Administrator, it is stated that loss of rationed foods resulting from overproduction or less-than-estimated patronage aggregates about 6%. Additional loss is suffered when foods are held on the steam table; through shrinkage of meats "due to moisture evaporation in storage, loss of blood, hanging or thawing frozen meats"; pilferage, which is higher during wartime because of high labor turnover and temptation of employees to take rationed foods for home consumption; deterioration due to inexperienced personnel. In addition, institutional users are not allowed red points for salvaged fats. A set of menus for one week from a chain restaurant disclosed that of a total of 300 food items listed, 21 were rationed meats, consisting of low-point items such as braised meat, sausage, leg of lamb, tongue, kidneys. The menus were submitted as typical of the restaurant operator who keeps within the rationing regulations. It is further stated that if rations to operators, including hospitals, industrial plants and schools, are generally reduced, these groups will be brought below their recognized food requirements from a nutritional standpoint. A chart on foods served in public eating establishments in the United States for December 1942 (base period), April–December 1944, and January–March 1945 shows that the average meal check for each period was 26 cents, indicating that "public eating establishments serve Mr. and Mrs. America rather than the so-called carriage trade."

The National Restaurant Association convention and exposition, usually held in October, has been postponed to 1946.

Food and Winning the Peace was the subject of a special program held June 26 at the Museum of Modern Art under the sponsorship of the New York City Food and Nutrition Committee, WFA, and OWI. A preview of *Something You Didn't Eat*, a Walt Disney production on nutrition, followed the discussion.

Movies on Food. The following sound movies are available in 16 mm. size free on loan from county agents or home demonstration agents or the Motion Picture Service, Office of Information, USDA, Washington 25: *Something You Didn't Eat, Canning the Victory Crop, Saving the Garden Crop, Curing Pork Country Style*, and *The Man Who Missed His Breakfast*. A complete list of movies available, including those in 35 mm. size, may be obtained from the above address.

Foreign Foods. The Secretary of the Committee on Food Composition, National Research Council, requests that the following be called to the attention of readers of this JOURNAL: "The National Research Council is anxious to obtain data on the composition of foreign foods, particularly Far Eastern foods, and earnestly solicits such information. Address communications to Dr. L. J. Teply, Secretary of the Committee on Food Composition of the Committee on International Food Value Problems, Food and Nutrition Board, National Research Council, 2101 Constitution Ave., Washington 25, D. C."

Industrial Restaurant Operators' Meeting. At this meeting, held in Chicago June 13, Mrs. Alice Hoover, Thompson Aircraft Products, Cleveland, spoke on Changing Food Habits in Mass Production; and Andrew J. Crotty, Jr., Crotty Bros., Inc., Boston, on Industrial Feeding—Past, Present and Future. Problems of the industrial operator were discussed by several of those in attendance. Copies of the proceedings are available for distribution to members engaged in industrial feeding from Armin Kusswurm, National Restaurant Association, 8 S. Michigan Ave., Chicago 3.

Keeping Orange Juice. At the Florida Citrus Products Station, chemists tested both orange and grapefruit juice, extracted by hand and by machine, and stored covered and uncovered, in the refrigerator and at room temperature, according to a report in USDA's *Food and Home Notes*, June 4. They found that preparing juice the night before it is to be used causes little if any loss of vitamin C or flavor, however it is kept. But if prepared too long in advance, the juice changes flavor and begins to ferment. Keeping juice covered and in a cold place is best for saving flavor. Juice held at room temperature begins to change flavor after 2 days; in the refrigerator, after 3 days. The vitamin C in the juice is so stable, however, that it does not suffer for several days, whether the juice is covered or not, and whether it is in the refrigerator or standing at room temperature.

Vitamin A Value of Butter. The average vitamin A value of the creamery butter produced in the United States is more than 15,000 I. U. per pound, according to a recent study by state experiment stations, in cooperation with the Bureau of Dairy Industry and the Office of Experiment Stations, USDA, reported in a release dated July 2. The study was begun in 1941 at the request of the Food and Nutrition Board, N.R.C., to determine the normal variations in the vitamin A values of butter as affected by season and regional feeding practices, and also included determinations on vitamin A found in butter on retail markets after varying periods of cold storage. At the consumption rate which prevailed in the United States just before the war (about 18 lb. annually per capita), butter furnished about 740 I.U. per capita daily, or about 15% of the daily allowance recommended for normal adults by the Food and Nutrition Board. The average vitamin A value per quart of milk consumed in all its forms is 1530 I.U., and when the average consumption rate is 1.052 qt. daily per capita, as it was in 1941, milk and milk products furnish about 1600 I.U. vitamin A daily per capita, or nearly one third of the recommended allowance.

The 14 states where surveys of creamery butter have been completed produce 64% of the national output. As was expected, a distinct difference was found between butter produced under summer and winter feeding conditions. About 36% was "winter butter" with an average potency of 11,200 I.U. vitamin A per pound, and 64% "summer butter" with an average potency of nearly 18,000 I.U. Storage tests on butter by 7 state laboratories indicate that both carotene and vitamin A are very stable and that no significant losses occur during ordinary periods of commercial storage at the usual storage temperatures. Studies of the butter sold on retail markets in 4 states indicate that, although the proportionate amounts of summer and winter butter may vary from

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month to month, the consumer can expect to obtain butter most of the time which compares favorably in average vitamin A potency with the over-all average of 15,000 units per pound for all the butter produced.

According to the summary, the study gives a practical demonstration of the fact that the vitamin A potency of milk and butter depends upon the quantity of carotene in the cow's diet. Data on surveys in each state will be released separately, and the combined results will be embodied in a publication to be issued by USDA.

Under date of July 2, Best Foods, Inc., announced that it had raised the vitamin A fortification of Nucoa vegetable margarine from 9000 to 15,000 U.S.P. units a pound. This company was the first to raise its vitamin A content to that of the average for butter indicated by the survey.

Mealy Potatoes Selected by Easy Salt Water Tests. *Food Field Reporter* for July 9 states that vegetable crop specialists at Cornell University have developed a method for distinguishing mealy potatoes. This method was adapted from an old specific gravity test known as far back as 1890. Only water and common salt are needed to separate the light from heavy "spuds," the latter being the mealy ones. All potatoes sink in water because they are heavier than water. By adding common table salt, water is made heavier, and some potatoes will float. These are the non-mealy ones. According to the release, the method could be of real help to restaurants, hotels, housewives, and others. "Housewives could invite friends to dinner and feel assured their baked potatoes would turn out as desired."

Fresh Bread for Canadian Sailors. According to an item in the Canadian Home Economics *Newsletter*, June 1945, sailors on Canadian ships now have bread that is fresh even after periods of 19 days or longer at sea. This new type of bread was developed after experiments carried out over a 6-week period at the Royal Canadian Naval Bakery at Halifax. It was found that the addition of 8% soy flour in the usual bread mixture, with a small decrease in shortening, gave best results. Cake mixtures are now being studied to determine what proportions of soy flour will keep cake fresh at sea.

Quick-Freezing of Whole Milk. A recent announcement from the War Department states that a new method of quick-freezing whole milk is making it possible to serve this beverage to wounded soldiers returning on Army hospital ships. Even after 3 months' storage the frozen milk is as fresh in taste as new milk and the bacterial count is lower than that in the milk supply of the average American home. Approximately 30,000 pints is being shipped monthly from Charleston and Boston and additional supplies from New York, New Orleans, San Francisco, and Seattle. In addition, 400,000 pints is being shipped monthly to Alaska for American troops stationed there.

Surplus Food Policy. WFA has published for the first time a comprehensive statement of policies on disposal of surplus agricultural commodities and processed foods. The policy statement was concurred in by the Surplus Property Board and published in the *Federal Register* for June 29.

Salting Snap Beans. Snap beans, preserved by light-dry-salting with a little vinegar, proved among the most delicious of the score of vegetables tested and found suitable for salt preservation by scientists of USDA and the North Carolina Experiment Station, according to *Food and Home Notes*, July 2. The beans have a salty, mildly acid flavor, and hold much of their natural nutritive value if they are not soaked to "freshen" them before serving. Directions for salting are: Use either granulated or the lighter flake (dairy) or medium salt, not ordinary table salt, or coarse "ice cream" salt. Select extra tender, young, perfect beans, fresh from the garden. Wash thoroughly. Scald in boiling water 5 min. Cool promptly. Remove ends of beans and cut in small pieces. Then mix beans, salt, and vinegar thoroughly in a large bowl or pan, using for each 10 lb. beans ½ lb. salt, and 1 cup vinegar; or, in smaller quantities, 1½ lb. beans (enough for one quart jar) with 3 tbsp. medium or flake salt (or 2 tbsp. granulated salt) and 2 tbsp. vinegar. Pack the mixture in jars. Lay a small clean piece of cheesecloth over each jar, and insert a crosspiece of wood under the neck of the jar to hold the beans down so that the brine, as it forms, will rise above the beans. Place the filled jars in a shallow pan or on a tray to catch the brine that usually runs over during the fermentation process. Adjust rubber ring and cap or other jar closure so that it makes a loose catch—to let liquid and gas seep out but to keep out as much air as possible. Set the trays of jars where the temperature is about 70°F.

Towards the end of the fermentation, the level of the brine in the jar drops. If it drops below the beans, pour in more brine, made by dissolving about 2 tbsp. salt in a quart of water. When bubbling has entirely stopped, fill jars to the top with brine. It is not necessary to remove cheesecloth or crosspiece. Put on jar tops and seal tight. In a cool place beans preserved this way will keep as long as a year. Before serving, drain brine from the beans, rinse in fresh water, and cool like fresh beans in a small amount of water. Cook about 15 min. in a little water. The beans taste like those cooked and seasoned with salt and vinegar.

If there is no cool place to store beans, they may be processed in a boiling water bath for 30 min., sealing jars as in canning.

Further details about preserving with salt may be found in *Preservation of Vegetables by Salting or Brining*, available free from USDA, Washington 25.

A report showing the good results which may be obtained by salting beets, carrots, corn, beans and spinach is also available from the Diamond Crystal Salt Co., St. Clair, Mich.

Freezing Peaches. The method of adding citric acid or ascorbic acid to peaches before freezing is described in USDA's *Food and Home Notes* as follows: Immediately after peaches are peeled and sliced, dip them for 1 min. into a solution of citric acid, made by dissolving ¼ tsp. citric acid crystals in 1 qt. water; or, slice directly into a syrup to which ¼ tsp. ascorbic acid has been added per cup syrup. Pack peaches in chilled syrup (3 cups sugar and 4 cups water); or pack in 1 part by weight sugar to 3 or 4 parts by weight of fruit. Seal package tightly, label, and freeze as rapidly as possible. Always thaw peaches in the sealed container to keep best flavor and color, and serve promptly while a few ice crystals remain in the center of the slices.

Not all varieties of peaches are suitable for freezing. Write to state colleges of agriculture or experiment stations for a list of local varieties which give the highest quality when frozen.

Freezing Vegetables and Fruits. An excellent treatise on how to prepare and freeze vegetables has been published by Westinghouse Electric Corp., Mansfield, Ohio, prepared by Mrs. Julia Kiene, director of the home economics institute. Complete directions for preparing the vegetables and packaging are accompanied by photographic illustrations. Separate directions for each vegetable are given, and a chart listing suitable common varieties, approximate yield, amount of waste, and approximate final quantity for freezing. Another section tells how to cook frozen vegetables. A limited number of copies of the leaflet are available.

A second bulletin deals with the preservation of berries, melons, pears, plums, etc. Not all fruits freeze particularly well. If storage space for apples is lacking they can be made into apple sauce and then frozen, thus conserving freezer space. Blackberries and black raspberries are probably the least desirable fruits to freeze. The necessary equipment, when to gather, preparation, packaging and labeling are included in the bulletin, with a chart of best varieties for freezing, estimated waste, and approximate yield.

Refrigerator Freezing. A small quantity of garden peas, greens or beans may be held a few days in the freezing compartment of the home refrigerator, according to household equipment specialists of USDA. Wash and prepare vegetables as for cooking. Blanch in boiling water the length of time recommended for freezing in lockers. Then cool, drain and pack in refrigerator trays lined with waxed paper which has been cut large enough so that all four sides will fold over the food and tuck down securely at the edges. Place in freezing compartment. Never try to hold longer than a week.

New Frozen Food Package. Lowered retail prices for frozen foods may be expected through a new single container package developed by American Can Co., New York, according to *Food Field Reporter*. The container is shaped like the conventional oblong frozen food package, with semi-rigid walls made of paraffin-impregnated fiberboard similar to milk container cartons. The ends of the package are light weight tinplate, which can be opened with a kitchen knife or can opener. Because the container is extremely resistant to the transfer of moisture-vapor and to water leakage, it provides better protection for frozen foods than packages now in use. A limited number will be manufactured this year for use in sample testing among representative frozen food packers.

Refrigeration Abstracts is to be the title of a new publication to appear early in 1946 under the direction of the American Society of Refrigerating Engineers, which will provide a check on all possible sources of the literature of interest, and cover in its early issues more than 200 periodicals in English as well as a number of leading foreign publications. It is expected that the review will reach more than 3000 engineers and scientists in the refrigeration field.

Canning Fruits. Fruits do not need sugar in canning to prevent spoilage, but sugar helps hold flavor, color, and shape, say USDA home economists. The jars of fruit may be filled with juice or water instead of the usual sugar syrup. Juice is preferable, and may be made from the riper, softer fruit which would not hold its shape in canning. Fruits probably best suited to home-canning without sweetening are peaches, apples, apricots, and cherries. For those who prefer sweetened fruit a moderately thin syrup can be made with 1 cup sugar to 2 cups either water or fruit juice—made by crushing, heating, and straining fruit too soft for canning. To stretch canning sugar, corn syrup may replace up to one third the sugar; mild-flavored honey, up to one half.

Tomato Arithmetic. USDA home canning specialists offer the

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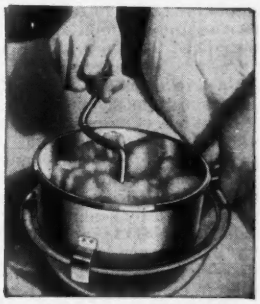

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following: If a tomato plant gives a good average yield of 6 lb. tomatoes, this will be enough to can about 2 quart jars of tomatoes or juice. On the average, 9 or 10 plants will yield a bushel of tomatoes—enough for putting up 15 to 20 qt. tomatoes or tomato juice.

Serving Fresh Tomatoes. A good-sized tomato, vine-ripened and fresh from the garden, will give about half the day's quota of vitamin C, say nutritionists of USDA. They also suggest the following varieties of tossed salad: diced tomatoes, cooked kidney beans, chopped celery, chopped pickle or pickle relish, seasoned with minced onion, salt, and pepper, and moistened with salad dressing; mix diced tomato, celery, radishes, cucumber, scallions or green onions, and lettuce; tomatoes and potatoes diced, seasoned with chopped onion, salt and pepper, and mixed with French dressing; diced tomatoes, sliced cucumber and radishes with sour cream seasoned with grated onion, salt, and pepper.

Vitamin C in Tomatoes. Tests by scientists of USDA and state experiment stations show that the intensity of light on the plant during growth is of more importance in increasing vitamin C than any other factor yet discovered. Sunshine alone, however, is not enough, they report—other conditions must be favorable for the plant if vitamin C content is to be high.

New Variety of Rice. A new variety of rice, called Delrex, recently developed by scientists of the Rice Experiment Station in Louisiana and USDA, is described in a recent release as having a nutty or popcorn-like flavor and fragrance, similar to the "scented" rice preferred in India, Iraq, and Iran. For some years one miller in Louisiana has been raising and selling to a small trade an imported scented rice variety called Delitus. Delitus, however, matures early when grown in this country and does not yield well. The scientists crossed it with Rexoro, a successful, late-maturing, commercial variety grown widely in the United States. The result is Delrex, which has the good-yielding, long-grain qualities of Rexoro with the flavor and fragrance of Delitus.

New Sugar Source. A wild plant which yields crystals many times sweeter than sugar has attracted the attention of United States agriculturists working on a food-growing program in Paraguay. Experiments are being conducted in the cultivation of the plant for its potential uses in the United States and elsewhere, according to reports received by the Institute of Inter-American Affairs, an agency of the Office of Inter-American Affairs. The plant, known as Stevia Regaudiana, is native to Paraguay and has been used to sweeten maté, the country's favorite beverage.

New Dry Food Developed. Multi-Purpose Meal, a new dry food developed by Dr. Henry Borsook of the California Institute of Technology, has been purchased by American Relief for France, Inc., according to a recent announcement by the processors, F. W. Boltz Corp., Los Angeles. The all-purpose food may be served as a soup or a stew, by the addition of water. Use of this meal is also under consideration for relief feeding in other liberated countries. A 5-gal. can makes 1000 bowls of soup. A 12-oz. serving of stew provides one third the daily requirements of important vitamins and minerals. It is said to be filling and sustaining. Richen, another product based on the principles of Multi-Purpose Meal, developed to meet the need for a nutritious low-cost food in America for schools, camps, plant cafeterias, hospitals and other institutions, is being tested in public school systems in California.

New Pudding Mix. A new powdered pudding mix, thickened with fruit pectin instead of cornstarch or gelatin, which requires no cooking, has been produced by the Western Regional Laboratory of USDA. The new product, which is simply mixed with cold water, contains pectin, sugar, whole milk powder, salt, and a flavoring ingredient such as cocoa, vanilla, or fruit flavor. The mix comes in two small envelopes: the pectin and sugar in one are dissolved in a cup of water, the contents of the other envelope stirred in rapidly, and the whole poured in a mold. In 5 minutes the pudding is "set" and ready to serve. While not on the market yet, it is expected that the pudding will be available as supplies of pectin become more plentiful.

Other New Food Products. Among the new products shown by processors to editors attending the New York Market Newspaper Food Editors' Conference were: A canned sandwich of sharp cheese between two slices of bread, canned pork wth apple sauce, canned roast beef with gravy, and a "meat-bar" eaten like a candy bar (Wilson & Co.); canned scrambled eggs and minced ham, canned chicken stew with dumplings, dehydrated blueberries (H. J. Heinz Co.); canned jellied fruit salad which will not melt at room temperature (General Foods); and instantly soluble coffee (Borden & Co.). Some of these products are available now; others, in the near future.

A breakfast cereal, Banana-Rette, manufactured by Banana-Rette Corp., 75 West St., New York, made from bananas, corn and whole wheat flour, requires no sugar, appears in three forms—shredded, flaked, and in kernels, and later will be manufactured in small banana-shaped puffs. Another product made by the same company, Slocum's Banana Wafers, is a dietetic product particularly suited for celiac patients, and can be used in drinks, cereals, and baby formulas.

Rationing and Price Control. All livestock carcasses and wholesale cuts of meat must now be clearly marked with the slaughterer's official identification number before being sold or transferred by non-federally inspected slaughterers. This measure, effective July 15, makes it possible to determine the source of meat slaughter and to enforce OPA slaughter control and meat distribution program. By identifying the source of slaughter, each slaughterer's compliance with the regulation can be checked. In addition, marking requirements will help to determine whether meats have been obtained through legitimate channels. Laws already in effect required adequate marking of meat produced by federally-inspected slaughtering establishments.

A measure designed to assure hospitals, orphanages, asylums and other similar institutions of a meat supply sufficient to meet their minimum needs was announced June 3. In general, the measure was intended to make it possible for these institutions to get as much meat of the same, comparable, or reasonably substitutable items as they got from the same suppliers (or their successors) during the March–April 1944 ration allotment period. The institutions (Group 2 and 5 under GRO 5) may, for each allotment period, require deliveries of meat from the suppliers (or their successors) who supplied them during March–April 1944.

A test plan was put in operation by OPA in July in the country's western mining regions providing additional meats, fats, and sugar rations to individual coal and ore miners, except those served by on-the-job eating places, and extended to other sections of the country in August. Loggers were provided with additional rations last year. Deep sea fishermen, seamen on inland waterways, miners, and some heavy construction workers fed by employers under conditions of isolation have also been provided with extra rations. The OPA points out that while it is relatively easy for moderately active people to supplement rationed foods so as to fill out their daily caloric requirements, heavy workers such as loggers and miners find this extremely difficult. Most grain products foods are bulky. Following the normal habit of taking three meals daily, the worker in heavy industry could not eat enough of these bulky foods to meet his requirements. WFA obtained the aid of the N.R.C. in determining what groups of industrial workers need more calories. It is stated that: "OPA has always believed that the only practicable way to provide supplemental rations to workers was through in-plant feeding places, such as canteens and cafeterias. It was felt that it would be almost an impossible task to issue supplemental rations individually to all of the people doing heavy industrial work." Miners who qualify will be eligible to obtain not more than 1.7 red points per working day and 1 lb. sugar per month.

To make sure that supplies of canned milk continue to be available for infants, invalids, and other consumers to whom it is an essential food, OPA has cut off supplies from establishments that use canned milk in large quantities, such as institutional and industrial users—including restaurants, in-plant feeding establishments, prisons, and manufacturers who use the canned milk to make other products. In areas where fluid milk or other adequate substitutes are not available, application may be made to OPA.

Ceiling prices for processors' sales of the 1944–45 pack of canned grapefruit juice, grapefruit segments, orange juice, and orange-grapefruit juice blended, were announced June 26. At retail, ceiling prices for grapefruit juice remain unchanged while those for orange juice and blended juice are somewhat lower. No grapefruit segments will be available to civilians, since the entire output has been set aside for the armed forces. The prices were established on a uniform basis for each can size, without regard for grade, and for each fruit producing area. Last year processors' ceiling prices for these citrus products were established on the basis of U. S. grades and practically the entire pack of the various items was accordingly graded "fancy," according to OPA.

Actions by OPA concerning sugar, effective June 15, were: industrial user sugar factors for the third quarter reduced 10 to 20% of base use below the second quarter; amounts of sugar commercial canners may use "per unit" of fruits and vegetables reduced about 20% below the amount used last year; industrial users serving 177 counties and cities where the population has increased given larger allotments of sugar.

Nutrition Program Materials. Among the useful publications prepared by Jane Foster (Mrs. Madeline Mehlig) for the Commonwealth Edison Company, 72 W. Adams St., Chicago 90, are: booklet, *Vegetable Cooking From the Garden to the Table*, including menus and recipes; pamphlets, *Wartime Tips*, containing timely information and recipes; and articles and wartime recipes in the *Edison Service News*.

Directions for making Velva Fruit, in either hand freezer or mechanical refrigerator, are explained in a new illustrated recipe leaflet, *Making Velva Fruit at Home*, available free from USDA, Washington 25. Mellow-ripe fruit, too soft for canning, is ideal for this purpose, because it has full flavor and color. One serving

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PHOSPHORUS mg.	370	105	15	490
IRON mg.	3.3	.22	.6	4.12
VITAMIN A I. U.		160	120	280
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NIACIN mg.	6.0	.12	.05	6.17

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of Velva Fruit requires about 1 tbsp. sugar, according to USDA's *Food and Home Notes*.

Biological Abstracts Annual Report. In the report for 1944, John E. Flynn, editor-in-chief, *Biological Abstracts*, states: "As this report is written, over 1900 research journals in biology, experimental medicine and agriculture are being regularly abstracted in *Biological Abstracts*. Approximately 3000 collaborators are participating in the searching and abstracting of these journals. Over 1100 abstracters have taken on definite assignments for one or more periodicals. Editors to the number of 157, including some of the most eminent biologists in the country, are in charge of the several sections. All of this work, under the supervision of the central office in Philadelphia, is being carried out on a purely cooperative basis. The individuals participating are contributing their time and their skill to a great scholarly undertaking. Through their combined efforts, the information contained in current research literature is digested, assembled and put to work. *Biological Abstracts* goes to virtually every important institution of learning in the civilized world with the exception, at the present time, of enemy nations and the territory their armies occupy. . . . The policy has been followed, so far as possible, of having the literature in every part of the world abstracted by biologists in the nation of its origin. . . . Because of restrictions in communication during the war, most of the work of abstracting has fallen on the biologists of the United States. . . . In 1921 a careful survey of the extent of the biological literature led to an estimate of 40,000 titles annually. A subsequent study resulted in an increase of this estimate to 55,000 or 60,000 papers. Again, in 1936, the magnitude of the biological literature was surveyed, with an estimate of 70,000 papers published annually in over 6000 journals. . . . The central office staff of *Biological Abstracts* consists of 41 full-time members. For indexing, additional part-time personnel is available."

Texas Agricultural Experiment Station Bulletins. Circular No. 107, Texas Agricultural Experiment Station, College Station, contains abstracts of Bulletins 625–662, Circulars 101–105, and other publications during 1943 and 1944. Titles include: *The Vitamin A Content of Commercial Butters Sold in Texas*, by A. R. Kemmerer and G. S. Fraps (No. 629); *Development of Methods for Safe Processing of Home Canned Meats*, by Sylvia Cover, R. D. Turk, and A. H. Kerns (No. 635); *The Food Supply of Texas Rural Families*, by Jessie Whitacre (Nos. 642 and 643); *Factors Affecting the Quality of Southern Short Cure Cheddar Cheese*, by F. E. Hanson, W. S. Arbuckle, and C. N. Shepardson (No. 646); *The Utilization of Skim Milk in the Ice Cream Mix*, by W. S. Arbuckle, C. N. Shepardson, and H. M. Walling (No. 656); *Effect of Fatness on Tenderness of Lamb*, by Sylvia Cover, A. K. Mackey, C. E. Murphy, J. C. Miller, H. T. Bass, C. L. Bell, and Carl Hamalinen (No. 661). Texas Agricultural Experiment Station publications as of December 31, 1944 are listed, classified according to subject.

Ernestine Becker Announces Marriage. Announcement has been made of the marriage of J. Ernestine Becker and Dr. E. V. McCollum on June 28 in Brown Memorial Church, Baltimore. Miss Becker has been Dr. McCollum's associate in biochemistry at the Johns Hopkins School of Hygiene and Public Health for 24 years.

Ella M. Eck Receives Appointment. Miss Eck, chief dietitian, University of Chicago Clinics, has resigned to take a position as supervising dietitian in restaurant management with Dinsmore and Company, Chicago. John C. Dinsmore, head of the firm, was connected with the University of Chicago for about 20 years, as purchasing agent and as superintendent of the University Clinics. Marion Jones, first assistant dietitian and cafeteria manager at the University Clinics since 1935, will succeed Miss Eck as head of the department. Miss Jones received her B.S. degree from Stout Institute and her student training at Cook County Hospital, Chicago. Her experience includes work as dietitian at Cook County Hospital and the Illinois Masonic Hospital, and as assistant manager at the Petit Gourmet Restaurant, Chicago.

Millicent Atkin. Miss Atkin, for nineteen years associated with the Evaporated Milk Association, Chicago, died in Chattanooga, Tennessee, on June 8. She was well and favorably known to the members of the American Dietetic Association, of which Miss Atkin was a member, through her attendance as an exhibitor at the annual meetings of the Association. She held a degree in home economics from the University of Chicago. The director of the Nutrition Service, Marietta Eichelberger, writes, "This organization will always be indebted to Millicent Atkin for the splendid contribution she made toward its educational program."

Army Dietitian Serves in Italy and the Philippines. Lt. Pauline H. Emerson, after serving during the early period of the Italian invasion, is now on duty in the Philippines, where she says that Manila "is more in ruins than Naples."

Correspondent Franz Weissblatt Hospitalized. U. P. Correspondent Franz Weissblatt, husband of Vivian Weissblatt, M.D.D., underwent an operation in New York in June to correct a severe injury to his thigh and leg sustained in January 1942 when he was ambushed and shot by Japs on Bataan, according to an article in *Time*, July 2. It is reported that the only medical treatment he received at the hands of the Japs was a dressing of mosquito netting soaked in picric acid. Correspondent Weissblatt and his Army dietitian wife were imprisoned in Manila until February 1945 and repatriated as described editorially in this JOURNAL for May.

News From the Other Americas. The third Inter-American Conference on Agriculture, organized by the Committee on Agriculture of the governing board of the Pan American Union, was held in Caracas, Venezuela, beginning July 24, under the auspices of the Venezuelan government. Attending were delegates of the American governments, with representatives of the Pan American Union, the International Labor Office, and the Interim Committee of the United Nations on Food and Agriculture. The theme of the conference was Agriculture and the Postwar Period. In the various sections of the program, conferees discussed important phases of postwar agriculture, reviewing in the first section on money and agriculture the recommendations of the United Nations Monetary and Financial Conference held in Bretton Woods, and of the Inter-American Technical Economic Conference. Present agricultural production and its adjustments to the postwar period was the subject of the second section. Increased efficiency in production of basic foodstuffs, and the increased consumption of food and raw products were discussed in the third section, and markets and transportation in the fourth. Technical committees were appointed to carry out work of the conference sections.

A release from the Office of Inter-American Affairs in June described a modern regional clinic hospital recently instituted in Concepcion in the south of Chile, the first Chilean hospital to establish a blood bank. The institution was financed by the Reconstruction Corporation and its clinics and rooms provided by the University of Concepcion. New features of the hospital system are said to be its "dietetic regime" and medical control of patients similar to the clinical procedure of the Mayo Clinic. The institution has 879 beds, 5 floors, and 45 physicians, in addition to nurses, dietitians, laboratory technicians, and other hospital workers.

Canadian News. The Canadian Home Economics Association Biennial Conference scheduled for August 27–31 was cancelled due to the fact that all meetings of national groups in Canada have been prohibited.

The P.T.A. of British Columbia has made a grant of $20,000 to be given to the University of British Columbia for the building of a home management house, to accommodate 6 or 7 students, a permanent staff member, and a baby to be adopted temporarily. Charlotte Black is director of the home management division at the university.

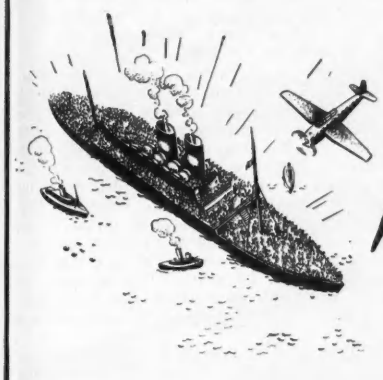
Alabama Dietetic Association. The association now has a membership of 42, according to a message from Anne Gretschmann, president, in the first issue of the association's official bulletin, the *Alabama Dietitian*. Other officers for 1945–46 are: vice-president, Ester Scott; secretary, Elizabeth Jacobs; treasurer, Mrs. Alice R. Lewis; committee chairmen as follows: professional education, Kate Whitfield; administration, Mrs. Katherine Musgrave; diet therapy, Sara Cofield; community education, Beatrice Finkelstein; constitution, Mrs. Elizabeth S. Seay; and bulletin, E. Neige Todhunter.

The association held its tenth annual meeting at Jefferson Hillman Hospital, April 28. Program speakers included: Maniza Moore, president, A.D.A.; Drs. Tom Spies, Birmingham, Roy Kracke, dean, Medical School, University of Alabama, and George Dennison, director of public health, Jefferson County; and Lt. Florence Lutz, Northington General Hospital.

New members of the state association include Sara Rogers, graduate of Eastman Kodak Company training course; Carolyn Shaw, New York Hospital graduate; and Dr. Mary E. Lyons. All are on the university staff, the latter in charge of quantity cookery, tearoom service, experimental foods, and food research.

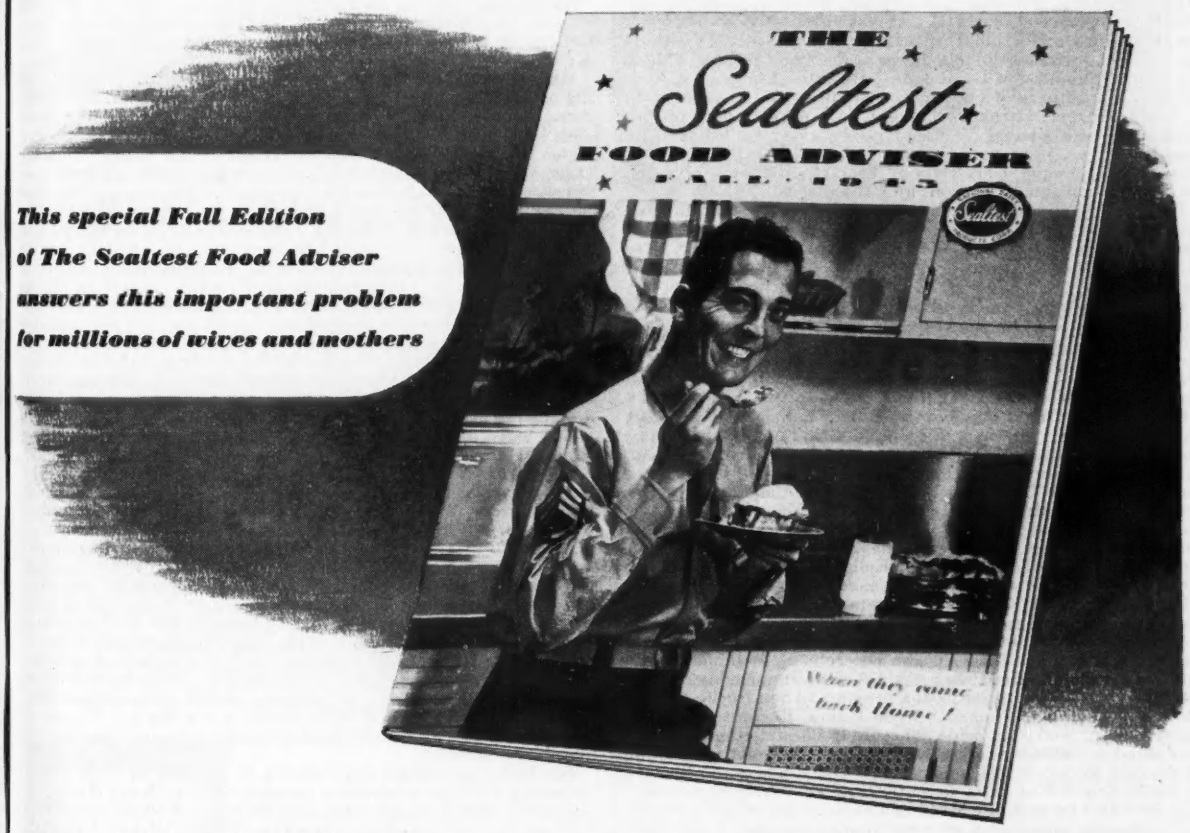
The following graduates of the 1944–45 training courses have received appointments to approved hospitals: from Alabama College—Jean Martin Branyon, Walter Reed Hospital, Washington; Elizabeth Pope, Brooke General Hospital, Texas; from Alabama Polytechnic Institute—Dorothy Clayton, Colorado State Hospital; Mrs. Esther Fuller, St. Luke's Hospital, New York; Mary Evelyn Jefferson, North Carolina Baptist Hospital; Mary Popwell, Peter Bent Brigham Hospital, Boston; from University of Alabama—Mildred Brame, Vanderbilt University Hospital, Nashville; Duane Brady, St. Luke's Hospital, New York; Virginia Burkholder and Virginia Massey, Charity Hospital of Louisiana; Annie Jo Hardage, Albany Hospital, N. Y.; Mrs. Margaret Koniz, Charlotte Memorial Hospital, N. C.; Jane Miller, Harper Hospital, Detroit; Gwen Phifer, Duke University Hospital, Durham; Mildred Thorpe, St. Louis University Hospital; and Jeanne Reid, New York Hospital, New York.

Connecticut Dietetic Association. A supper meeting was held



When the boys come home—

—WHAT WILL THEY WANT MOST TO EAT?



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June 26 at the Y.W.C.A., New Haven, after which Dr. George R. Cowgill, professor of nutrition, Yale University, talked on Newer Aspects of Nutrition.

Michigan Dietetic Association. Owing to the illness of Mayme Lewis, secretary, Adelia Beeuwkes will assume her duties for the remainder of the term.

Dr. Jean Hawks Hewetson has resigned from the association and from the faculty of Michigan State College in order to join her husband who has accepted an appointment on the staff of Pennsylvania State College.

New appointments on the staff of Butterworth Hospital, Grand Rapids, include: Mary Hurbert Lincoln, as chief dietitian, Mrs. Patricia Hile, as administrative assistant, and Mary Margaret Budd, as therapeutic assistant. Mrs. Geraldine Rolf Rizzardi is at Blodgett Hospital.

Lt. Comdr. Gerhard N. Riste, husband of Mary Harmon Riste, Butterworth Hospital, died August 10 at Bainbridge, Md., where he had been in charge of a naval preparatory school.

Elizabeth Marceso has resigned her position at Mercy Hospital, Bay City.

Nebraska Dietetic Association. At the annual meeting on April 25 at Lincoln, the following officers were elected: president, Lydia Beck, Methodist Hospital, Omaha; vice-president, Bertha Magee Fuller, Orthopedic Hospital, Lincoln; secretary, Lucile Jacks, Clarkson Hospital, Omaha; and treasurer, Myrtle Donahoo, Lincoln General Hospital. In addition to Mrs. Bessie Brooks West, president-elect of A.D.A., who as guest of honor addressed the group on Our National Association and Postwar Dietitians, the program included the following speakers and subjects: Major Norman A. Samuels, M.C., Regional Hospital, Lincoln Air Base, Relative Importance of Diet in Gastrointestinal Disorders; Mr. A. Lew, manager, Cornhusker Hotel, Lincoln, Training of New Employees; and a panel discussion on Teaching Dietetics to the Student Nurse, presented by Vesta F. Davis, St. Joseph's Hospital; Hazel Sprague, University of Nebraska Hospital; Margaret Bruechert, Immanuel Hospital; and Miss Jacks.

While in Omaha Mrs. West was interviewed by Marian MacDonald of the Homemaker's Club on station KOIL and Barbara Bates on station WOW. The A.D.A., its requirements for membership, and the need for trained dietitians were among the topics discussed.

Lts. Harriet Schutt and Cynthia Bishop have been added to the dietary staff of the Lincoln Army Air Field Base Hospital.

Mrs. Helen Claybaugh Mutz of Lincoln, whose husband is in the armed forces, has announced the birth of a daughter. Mrs. Iva Ottley Ickles, formerly staff dietitian at Lincoln Air Base, also announces the birth of a daughter.

Recent appointments include: Mildred Tolles, now at Mary Lanning Hospital, Hastings; Florence Smith, Food and Nutrition Department, University of Nebraska, now head, Institution Administration Department; Hortense Allen, house director, University Residence Halls, now on the staff of the American Red Cross, St. Louis; Mrs. Mary B. Addison and Mary McCrary, now chief dietitian and assistant, respectively, Veterans Hospital; Lenore Webber, now chief dietitian, Fr. Flannigan's Home, Boystown; Melva Meierhenry, Marian Keller, Dolores Starjohn and Mrs. Elsie Davis, all at Martin-Nebraska Bomber Plant.

Dorothea Sander, executive secretary, Nebraska Nutrition Committee, is doing graduate work at the university.

New York State Dietetic Association. At the May meeting of the Rochester Dietetic Association Dr. John R. Williams, Highland Hospital, discussed diabetes. Association members have been active in a food preservation program of the Rochester and Monroe County War Council. Irene Muntz, Rochester Gas and Electric Corp., and Mrs. Zelda Johnson, Rochester Home Bureau, have acted as instructors in a refresher course in food preservation for selected leaders in the community. Dietitians of the Rochester Public School System participated in a "Day Training School," May 19. The program included demonstrations on the preparation of food to save maximum nutritional value, salad and sandwich preparation, different methods of service and use of menu guides. Discussion meetings were held on management, sanitation and administration. Mrs. Ethel Marth, Red Cross nutrition adviser, addressed the group on the plan of the Red Cross to teach nutrition in the public schools.

At the May meeting of the Buffalo Dietetic Association the following officers were elected for 1945–46: president, Marie Sisson, E. J. Mayer Memorial Hospital; vice-president, Annette Rachman, Buffalo General Hospital; secretary, Jean Waddington, Millard-Fillmore Hospital; treasurer, Lynn Sandborn, U. S. Employment Service, Buffalo. Ellen Guernsey, president-elect of the state association, was speaker at the annual dinner.

A sound film on modern nutrition, prepared by E. R. Squibb & Company, was shown at the March meeting of the Hudson Valley Dietetic Association.

The program of the April meeting of the Utica Dietetic Association included a discussion by Dr. Daniel C. Munro of his book, *Man Alive You're Half Dead!*

Recent appointments throughout the state include the following: Ruth Titus, now at Strong Memorial Hospital, Rochester; Helen Flemming, now assistant therapeutic dietitian at St. Mary's Hospital; Marion Byrne, St. Mary's Hospital, now nutrition adviser at Eastman Kodak Company; Marion Stine, now assistant administrative dietitian, Rose Mary Goodison, in charge of maternity diets, and Doris Porter as cafeteria manager, all at Highland Hospital, Rochester; Marjory Hartnell, Iowa State College, and Margaret Hulbert, Cornell University, now on staff at Sisters of Charity Hospital, Buffalo; Florence C. Morton, now at Meyer Memorial Hospital, Buffalo; Molly Beall, Ellis Hospital, Schenectady, now chief dietitian at Maumee Valley Hospital, Toledo, Ohio; Nancy Gentges, graduate of student dietitian training course at Albany Hospital, now assistant dietitian; Mary Bradley, St. Elizabeth's Hospital, now at Rhoads General Hospital, Utica; Rosamond Fox, and Mrs. Ruth Winnie, now at St. Elizabeth's.

Lt. Mary Jane Garner is now serving on a U. S. hospital ship. Lt. Emily Widner is in the Pacific Theater of Operations. Lt. Grace Brandner writes that life on the Marianna Islands is primitive, to say the least, but most interesting. Lt. Celeste Latus is in India.

Mr. and Mrs. M. A. Marshall (Elizabeth Moxley) have announced the birth of a son, June 8. Mrs. Marshall was formerly assistant dietitian at Neurological Institute, Columbia Medical Center, New York, and served as Army dietitian at Walter Reed General Hospital and at Station Hospital, Camp Breckinridge, Ky., until her discharge in March 1944.

Ohio Dietetic Association. Officers elected at the May 5 meeting of the Executive Board and heads of committees, are: president, Bertha Biltz, St. Luke's Hospital, Cleveland; president-elect, Elizabeth Perry, City Hospital, Cleveland; vice-president, Helen Volk, Cincinnati General Hospital; secretary, Dorothy Osler, Children's Hospital, Columbus; and treasurer, Lillian Rees, Norwood School Lunchrooms; chairman of the nominating committee, Mrs. Martha Nelson Lewis, State University Hospital.

Mrs. Marjorie Hall Siler, chairman of the Professional Education Section, reported that her committee had endeavored to contribute to the project of teaching nutrition and dietetics to student nurses by the construction of objective test questions based on the new curriculum for student nurses. A panel discussion was held at Children's Hospital, Cincinnati, to stimulate the interest of all teachers in the new curriculum and the new type of objective questions. Another field of activity of the committee was in recruitment of Army and civilian dietitians, through literature explaining the need of dietitians, through speakers, and skits designed to attract the interest of high school girls.

The work of the Community Nutrition Section, reported by Jane Diehm, included revision of the school lunchroom manual. Among other improvements, questioned recipes were checked by cafeteria managers in Ohio schools, soybean recipes were included from Western Reserve University and the University Hospitals, and the bibliography was amended.

Henriette Pribnow, chairman of the Diet Therapy Section, reported that her committee had conducted a survey to determine the effect of present fat restrictions on adequacy of the diet. Twenty-four replies from institutions reported the use of jam, jellies, preserves, peanut butter, and honey, when neither butter nor margarine was available. One hospital reported the use of soy butter. Uncolored margarine offered to personnel received only 10 per cent acceptance; acceptance by patients covered a wide range—20 to 95 per cent. In only one instance was there a deficiency in either the level of fat or the vitamin A intake. The use of fortified margarine in the cooking seemed to compensate for the limited use of butter.

The following officers were elected at a recent meeting of the Columbus Dietetic Association: president, Mary Irene Hageman, University Hospital; president-elect, Beatrice Evans, Ohio State University; vice-president, Geraldine Dillow, Grant Hospital; secretary, Margaret Eberle, Mt. Carmel Hospital; treasurer, Marie Huerkamp, Mills Restaurant.

Lt. Pauline Brady, formerly assistant dietitian at Holmes Hospital, Cincinnati, is now stationed at Fort Thomas, Ky. Lt. Doris Mauntler, formerly administrative dietitian at Christ Hospital, Cincinnati, is now at Headquarters Hospital, Camp Butner, N. C. Betty Jean Aubertin, Indiana Medical Center, is now ward dietitian at Cincinnati General Hospital. Mrs. Joan Duffey Wilhelm is teaching nutrition to the cadet nurses at Good Samaritan Hospital.

Mrs. Robert Goble, Lima Memorial Hospital, spent her vacation as camp counselor at the local scout camp.

Recent marriages include: Ann Toomey, assistant therapeutic dietitian, Good Samaritan Hospital, Cincinnati, to Mr. William B. McAllister; Berneice Hockersmith, assistant administrative dietitian, Christ Hospital, Cincinnati, to Mr. Milford Witman;

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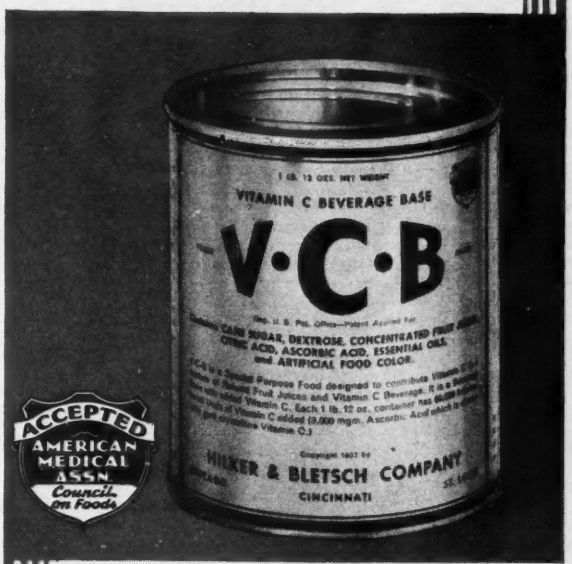
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and Martha Helpbringer, assistant dietitian, City Hospital, Akron, to Lt. (j.g.) George Van Brunt.

Oklahoma Dietetic Association. The following officers were elected for 1945–46 at the April business meeting: president, Mrs. Muriel T. Nelson, Tulsa; president-elect, Marguerite Ross, Stillwater; vice-president, Vera Parman, Oklahoma City; and treasurer, La Von Thompson, Oklahoma City Dairy Council.

A new constitution and bylaws conforming to the style suggested by A.D.A. were adopted.

Veda E. Bailey, president, presided at the luncheon given by the Oklahoma City Dairy Council. Twenty-eight of the 33 association members attended the meeting.

Vermont Dietetic Association. The first annual meeting, with 45 members present, was held May 5 at the University of Vermont. Program speakers were Gladys E. Hall, executive secretary, A.D.A.; Loren Gibson, WFA, who talked on factory inspection and grading of foods; and Dr. Harold B. Pierce, Department of Biological Chemistry, University of Vermont, who gave a review of his study on the nutritional status of children in both cities and towns of Vermont. Guests included Milla Newland, president, Vermont Home Economics Association, and Dr. Dorothy Hager, Vermont Medical Society. Officers for 1945–46 are: president, Theodora E. Wakefield; vice-president, Mary N. Bowles; secretary, Elizabeth Metcalf; treasurer, Florence E. Bailey; and chairman of projects, Milla Newland.

News From Advertisers and Exhibitors. An innovation of the Wyandotte Chemicals Corp., Wyandotte, Mich., is the "sales schools" of the J. B. Ford Division at which representatives of the company spend several hours under the direction of home office technical service executives performing the same testing operations used in plants on service calls. Better and more practical service to customers should certainly result from these extensive educational efforts.

An attractive booklet entitled, *It's Cookin'*, available from the National Dairy Council, 111 North Canal St., Chicago 6, suggests a variety of breakfast, luncheon and dinner menus, simple and easy to serve, and prepared with the present food restrictions in mind.

The June issue of *Cellu Topics*, distributed by the Chicago Dietetic Supply House, Inc., contains an interesting and helpful article on protein foods and fats.

McGraw Electric Company, Elgin, Ill., announces the appointment of Harry B. Davis, Jr. as New York District Manager for Toastmaster Products Division, with headquarters at 196 Lexington Ave., New York.

An agreement has been reached whereby the General Foods Corporation will take over the assets and business of the Colonial Salt Company, Akron, Ohio, one of the pioneer establishments in the industry.

Dr. B. W. Fairbanks, formerly professor of animal husbandry, University of Illinois, has joined the staff of the American Dry Milk Institute, Chicago, as head of the Division of Scientific Development. Dr. Fairbanks received his Ph.D. degree in nutrition in 1934 and has since been on the staff of the University of Illinois until his resignation, May 1. His knowledge and experience in nutrition, coupled with his thorough scientific training and close association with technical agricultural problems, fit him particularly well for his new duties in the dry milk field.

The Philadelphia *Record* for June 22 carries an interesting article concerning Sir Alexander Fleming, renowned British scientist and discoverer of penicillin, who visited this country to confer with research workers. A description is given of the meeting between Sir Alexander and G. Raymond Rettew, of West Chester, Pa., who four years ago was director of the Chester County Mushroom Laboratories. Dealing in fungi and knowing that penicillin was produced from mold, Mr. Rettew studied the papers of Sir Alexander and other British bacteriologists who had become associated with the research. Then, with no other instruction, he began the manufacture of penicillin. The Chester County Mushroom Laboratories has since been absorbed in the Wyeth pharmaceutical organization, large manufacturers and distributors of oral penicillin, as well as of Soyola, advertised in this JOURNAL for use in feeding infants subject to eczema.

For summer meals Marie Gifford's Kitchen Service, Armour and Company, Union Stock Yards, Chicago, in Bulletin No. 85 recommends a combination of hot and cold foods—steaming bowls of filling, satisfying soups, piping hot, with crackers or Melba toast, followed by cold sandwiches of deviled ham or tongue spread, bacon, liver sausage, or corned beef hash. Recipes for both soups and sandwiches are included.

Mary F. Ihle, former high school teacher and assistant director, Home Economics Department, H. J. Heinz Company of Pittsburgh, has joined the staff of the Westinghouse Home Economics Institute as central supervisor, as announced by Mrs. Julia Kiene, director. Her duties will include demonstrations on home freezing of foods, kitchen and laundry planning, and instructional meetings on the use and care of home appliances. Miss Ihle will cooperate with the home economics departments of universities, colleges, department stores and utilities in carrying out this educational work. She will be stationed at the Mansfield plant of the Westinghouse Electric Appliance Division.

A new method of processing and sterilizing cream so that it will keep at room temperature for a year or longer is described in a release from Westinghouse Electric & Manufacturing Co., 40 Wall St., New York. Now being used exclusively in the production of processed table cream and whipping cream for the armed forces overseas, the new method is the result of 6 years of research and development. The process involves "flash sterilization," followed by the bottling and hermetical sealing of the product, known as Avoset, under conditions as nearly 100% sterile as possible. Air delivered to the bottling room is thoroughly washed, brought to the proper temperature and humidity, then passed through the Precipitron, an electrical air cleaner. In the bottling room proper, Sterilamps are mounted on the ceiling, while others are located at stategic points along conveyors and around bottling and capping machines.

Four graduate home economists have received appointments as field representatives in the major sales districts of the Consumer Products Division of Corning Glass Works, Corning, N. Y. All four have had experience in the educational and selling fields, as well as in nutrition and dietetics, and recently completed a 2-month training program in the Corning test kitchen under the supervision of Lucy M. Maltby, home economics director, and member of A.D.A. Josephine Blanch, Inglewood, Calif., will cover the Los Angeles and western districts; Jessie Johnston, the Chicago and central area; Lillian C. Ziegfield, the eastern district with headquarters in New York; and Verna McCallum, the southern territory.

According to an announcement of Dr. Lillian B. Storms, Edna Mae McIntosh, formerly engaged in teaching nutrition and conducting nutrition research at Florida State College for Women, has joined the Department of Nutrition and Service, Gerber Products Company, Fremont, Michigan. Miss McIntosh received her bachelor's and master's degree from the above mentioned college and then worked toward her doctorate at Columbia University. The Nutrition Department at Gerber Products Company has a varied range of activities, grouped for convenience under nutrition research, product development, professional contacts, and service to the sales and advertising staffs. Miss McIntosh will assume responsibility for the educational contacts, literature, and the advertising copy, specifically in the home economics field, and assist Dr. Storms in the dietetic field.

Grocery Store Products Sales Company, Inc. states that Kitchen Bouquet, the popular cooking sauce, when brushed over roasts cooked at low oven temperatures, greatly enhances the product through the formation of a rich brown crust. Adding a little Kitchen Bouquet to the gravy, gives a rich color and increases the meat flavor.

Corning Glass Works, Corning, New York has announced the appointment of three new territorial representatives to the sales staff of its Consumer Products Division: Bruce M. Noyes will cover the states of Colorado, Nebraska, Wyoming and Kansas; Robert C. Bush, Ohio; and Richard F. Schultz, Montana, Idaho, Utah and Nevada.

The Dietene Company, Minneapolis 15, has announced the appointment of Robert R. Helmerichs as general manager of the company.

Human Relations in Restaurants. Behavior of working women under nervous tension is best illustrated by reactions of waitresses during the wartime period, because faced with acute food shortages, additional work to meet new government regulations, and with a labor force short in numbers and experience, restaurant organizations have extraordinary difficulties in meeting the record volume of consumer demand. A high degree of social adaptability is needed by a waitress. Whereas the factory worker does his day's work alongside a small number of other workers engaged in similar processes and under one supervisor, the waitress must adjust herself to a supervisor, other waitresses, customers, pantry workers and cooks. Management's job here is partly a matter of employee selection. Some people are much better fitted for waitress work than others. Research should be done in order that would-be waitresses could be sorted out on the basis of interviews or tests.—*Excerpts from a lecture by Dr. William F. Whyte at the University of Chicago, August 1, 1945.*